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SOME FATAL CASES OF MALARIA

A MORBID ANATOMICAL AND HISTOLOGICAL STUDY

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INTRODUCTION.

The attention of malariologists has to a great extent been diverted, since the unravelment of the mosquito link of the malarial cycle, from a study and control of the disease in man to a study and control of the anopheline carrier. Phenomenal success has no doubt attended efforts in the latter direction in such instances as the reclamation of Pontine marshes in Italy, the construction of the head works of the Sarda canal in the notorious Gangetic Terai and nearer home in the construction of the Raipur-Vizianagaram Railway line through one of the worst malarial tracts in the world. But it must be pointed out, that even in Italy, antimosquito operations have failed to rid the Tiber delta of the disease* and opinion is gradually gaining ground, also in other parts of the world that in the large sparsely populated, low-lying tracts of agricultural or jungle lands of the tropics at any rate, where the requisite moisture and warmth are perennial, complete eradication of the ubiquitous quick breeding mosquito is beyond the pale of sound economics. (Macphial N. P. Nutter and McDaniel (1930); Giglioli, G). The results achieved by a thoroughly organized and systematic antimosquito campaign in the Chatikona summit station have been summarised by an experienced malariologist like Senior White as follows: "For all that has been done and is being done by antilarval measures, Chatikona Summit station remains an exceedingly unhealthy place and must be one of the few protections in Asia, where such measures properly applied over an adequate radius have failed to achieve sufficient results."

Costly schemes of bonification; subsoil drainage; surface drainage by concrete channels; larvicidal treatment of collections of water by oiling, paris-green dusting and introduction of larvicidal fish; screening of houses; systematic use of curtained bedsteads and destruction of adult mosquitos by insecticides are impracticable on economic grounds alone, while dealing with purely agricultural or jungle lands of low productive value, as is the case in a large part of the malarial areas of this country.

*Southern Medical Journal (1931), Vol. 24, No. 5, pp. 407-463.

Thus it is becoming obvious that at least in the tropical countries, probably the more easily controlled human link of the malarial cycle is more vulnerable than that of the mosquito. In the human subject, at the present stage of our knowledge detection and adequate treatment of the disease must remain the most important measure in the antimalarial campaign, especially in areas of low endemicity like the town of Vizagapatam, where mass quinine prophylaxis is not warranted.

The protean variety and sometimes the serious proportions assumed by the malarial mimicry, especially in a non-immune population in an area of low endemicity like Vizagapatam, are not often sufficiently realized. The following cases, selected from a fairly large collection of autopsy material available in the Pathological department of the Medical College, illustrate fully the above statement and point to the necessity for a greater alertness in diagnosis and more accurate laboratory methods than a single examination of a thin smear of blood.

Case 1.

D. K., Hindu, female, 35 years old, admitted in a comatose condition on 16th November, 1932, suffering from fever. Clinical examination revealed a noisy hurried (32 per min.) respiration, bronchial in character over the apices on both sides ; crepitations over the left base; marked arterial pulsation at the root of the neck, rapid pulse (136-138 per min.) moderate pyrexia (101-102°F), heavy infection of the peripheral blood with M.T. rings and no palpable enlargement of the liver and spleen. Death ensued in 48 hours after admission. Autopsy disclosed malarial pigmentation of both liver and spleen, which were soft, flabby and weighed 42 oz. and 8 oz. respectively; biliary distension of gall bladder; multiple infarcts of the spleen; scarred condition of the kidneys; hypostatic pneumonia of both lungs. Microscopically, sections of the liver showed congestion of the sinusoids, impregnation of the sinusoidal endothelial and Kupffer cells with malarial pigment, more particularly in the peripheral zones and fatty degeneration and biliary pigmentation of the hepatic cords in the central zones; sections of the spleen showed marked reticulo-endothelial hyperplasia both in the pulp and in the malpighian bodies and a heavy deposit of granular malarial pigment. The brain showed constriction of the vessels, (Fig. 1) scanty pigment, pronounced glial reaction and degenerative changes (shrinkage and chromatolysis) in the neurons; malarial pigment was present also in the capillaries of the kidney, lungs and heart; sections of the lung in addition presented the picture of patchy pneumonic consolidation and hypostatic congestion, (Fig. 1A) sections of the heart showed interstitial fibrosis and those of the kidney moderate fibrosis of the arteriosclerotic type.

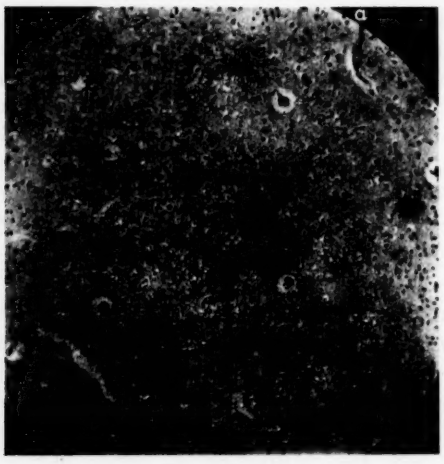

Fig. 1.

Photomicrograph of a section of the brain showing vaso-constriction, diffuse glial reaction and neuronal degeneration (Case 1).

(a) Constricted capillaries.

(Hæmatoxylin and Eosin; apochromat. obj. 8 m.m. periplan o.k. eye piece, 10 m.m.—Leitz).

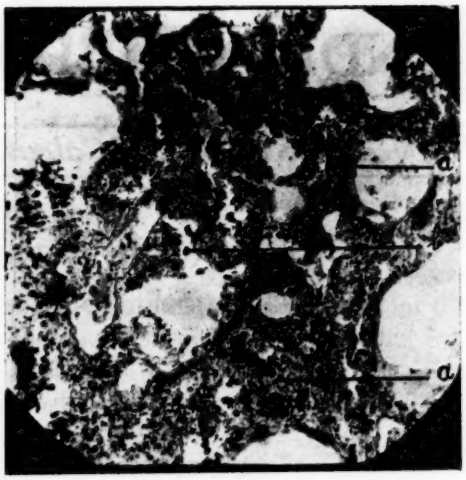

Fig. 1A.

Photomicrograph of a section of the lung showing (a) reticulo-endothelial proliferation, accumulation of malarial pigment in the thickened alveolar walls (b) emphysematous dilatation of others with an exudate of pigmented phagocytic monocytes in the lumen.

(Hæmatoxylin and Eosin; apochromat. obj. 8 m.m. periplan o.k. eye piece 10 m.m.—Leitz).

Case 2.

A. M., Hindu, male, aged 55 years; was admitted in the hospital in a comatose morbid condition on 12th December, 1933, and died a few hours later. Autopsy disclosed acute congested malarial liver (weight 45 oz.) and spleen (weight 12 oz.); malarial pigmentation of the myocardium, cortex of the brain, and the hyperplastic adrenal medulla; subperitoneal petechial hæmorrhages; atheroma of the aorta, coronary arteries and cardiac valves, moderate hyperplasia of the lymphatic glands of the cervical, substernal, preaortic and mesenteric groups and hypertrophy of the fauceal and pharyngeal tonsils. Microscopic examination confirmed the presence of malarial parasites and pigment in the capillaries of the liver, spleen, brain, kidneys and lungs. The capillaries of the brain and meninges were engorged with parasitised R. B. C. (Fig. 2). The capillaries of the splenic pulp, the sinusoids of the liver and the lymphatic glands showed well-marked reticulo-endothelial hyperplasia. Congestion and emphysematous condition of the alveoli of the lungs and an excess of colloid in the intermediate and anterior lobes of the pituitary were also observed.

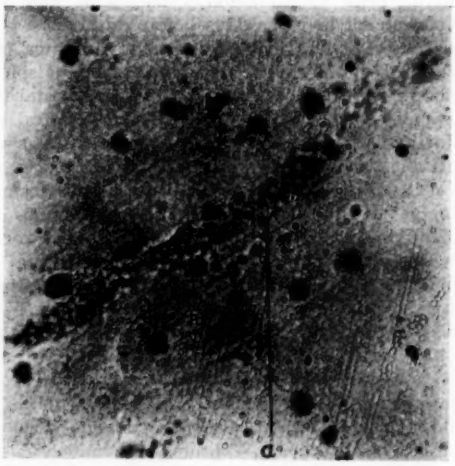

Fig. 2.

Photomicrograph of a section of the brain of Case 2 showing (a) dilated engorged capillary, in which every red blood corpuscle shows a parasite.

(Hæmatoxylin and Eosin; apochromat. obj. 1/12 oil m.m. periplan o.k. eye piece. 10 m.m.—Leitz).

Case 3.

P. R., Hindu, female child, aged three years, was admitted to the hospital on 29th December, 1933, for cancrum oris. The child had an attack of chicken-pox one month prior to admission and high fever until a few days before it. The cancrum oris was of three days' duration and involved at the time of admission the right side of the lower jaw, the soft parts covering it, the floor of the mouth and part of the tongue. Death ensued on 2nd January, 1934. Autopsy disclosed besides the necrotic lesions of the face and mouth, malarial pigmentation of the liver and spleen, broncho-pneumonic condition of both lungs, lymphoid hyperplasia in the malpighian bodies of the spleen and generally in the lymph glands. Microscopic examination showed abundant malarial pigment both free and inside phagocytic cells in sections of the liver and spleen. The spleen and lymphatic glands showed well-marked reticulo-endothelial hyperplasia. Immature cells of the granulopoietic series were also present under the capsule of the lymph glands. The adrenal medulla showed atrophy of the chromaffin tissue and fibrosis.

Case 4.

S. P., Hindu, female, aged 40 years; resident of Kasimkota; was admitted to hospital on 16th January, 1934, for respiratory distress and died on the same day before a complete clinical investigation could be done. A febrile attack with cough had set in five days prior to admission and had been followed two days later by breathlessness and heaviness in the chest. On admission the patient was well-nourished, restless, and hyperpnœic (Respiration 40 per min.). The respiration was bronchial in nature without adventitious sounds and was suppressed over the right base where the percussion note was also dull. The pulse was thready and the temperature subnormal. The spleen was not palpable. A provisional diagnosis of lobar pneumonia was entered. Autopsy disclosed an acute malarial liver and spleen; malarial pigmentation of the bone marrow, kidneys, lungs and heart. The lungs also showed areas of superficial collapse and emphysema. Persistent thymus, hyperplasia of lymphoid tissue in the duodenum and ileum, hypoplasia of the aorta, fatty change in the kidneys and a diffluent condition of the suprarenal medulla were the other findings. Microscopically malarial parasites and pigment were found in all organs (heart, kidneys, lungs, suprerenal and thymus) but the maximum concentration was seen in the liver and spleen. The vessels of all internal organs were in a state of constriction.

Case 5.

V., Hindu, male, destitute, aged 50 years; admitted to the hospital on 9th August, 1934, for acute epigastric pain and died a few hours after admission. He was undergoing anti-syphilitic treatment for three months prior to admission. Clinical examination revealed dyspnœa (respiration: 40 per min.); rigidity, pain and hyperæsthesia over the right rectus and signs of cardiac failure with no appreciable changes in its boundaries. Autopsy disclosed malarial pigmentation of the liver, the spleen, the kidneys, the lungs and the suprarenal, somewhat masked by the congestive changes characteristic of an acute congestive cardiac failure; subpleural and subpericardial petechial hæmorrhages; a soft friable moist heart; œdema of the gall bladder and a chronic gummatous ulcer on the dorsum of the foot. Microscopic

examination besides confirming the congestion and malarial pigmentation of the viscera observed macroscopically, also showed under the microscope extensive

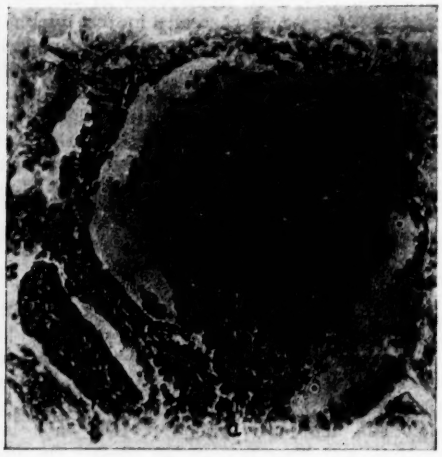

Fig. 3.

Photomicrograph of a section of the kidney showing well marked endothelial proliferation and malarial pigment in a swollen glomerulus (a) a collapsed glomerulus (b) is seen below and to the left.

(Hæmatoxylin and eosin; apochromat. obj. 8 m.m. periplan o.k. eye piece 10 m.m.—Leitz).

fatty degeneration of the hepatic cords and changes of acute nephritis in the kidneys. (Fig. 3).

Case 6.

R. N., well-nourished Hindu, male, 25 years old, hotel servant, was admitted to the hospital on 22nd October, 1934, for pyrexia of 2 days' duration. The febrile onset was attended with rigors, intense headache and pains in the joints. Clinical observation in hospital revealed a remittent temperature ranging between 101-103° F; a rapid pulse (124 p.m.); a soft mitral first sound; no hepatic or splenic enlargement; no malarial parasites in the peripheral blood and an erythematous skin rash, which appeared shortly before death on 28th August, 1934. Autopsy disclosed a flabby dark anæmic liver with a faintly irregular surface, a gall bladder distended with thick dark bile, a soft enlarged dark malarial spleen, a remarkably hypertrophied soft suprarenal with a deeply pigmented diffluent medulla, hyperæmic emphysematous lungs, a well-marked lymphadenopathy with hyperplastic, fauceal, pharyngeal, lingual tonsils and œsophageal submucous lymphoid tissue and hypoplasia of the aorta. Microscopic examination showed malarial pigment both free and inside phagocytic cells in all organs examined (liver, spleen, lungs, kidney, bone marrow, tonsils, pancreas and suprarenals) but more especially in the liver, the spleen and the lungs. In the liver the periportal sinusoidal capillaries were constricted, devoid of blood and contained most of the malarial pigment in swollen endothelial and Kupffer cells. The sinusoidal bed around the central hepatic venules was also free from blood but was partly disorganized owing to œdema and contained comparatively little pigment (Fig. 4). The hepatic cords though straining normally in the peripheral zones, showed extensive fatty degeneration and atropic shrinkage around the central hepatic venules. The narrowed pulmonary alveolar capillaries appeared impacted with clumps of malarial pigment (Fig. 5). Phagocytes laden with pigment were present inside the pulmonary alveoli; the sinuses of the splenic pulp and suprarenal medulla. (Fig. 6). In the kidney the pigment was present in the form of granules in the glomerular capillaries and as clumps underneath the basement membrane of the convoluted tubules.

Case 7.

J. A., Hindu, male, 12 years old; resident of Kasimkota; admitted on 5th November, 1934, to the medical wards of King George Hospital for swelling of face and feet and dyspnœa of one month's duration. Pallor, breathlessness on exertion and slight œdema had been noticed for the last three years, but became aggravated one month prior to admission; constipation and suppression of urine set in three days before admission. Clinical observation revealed marked anæmia, anasarca, ascites, pigmentation of the tongue, enlargement of the spleen and left lobe of the liver to three fingers below costal margin, engorgement of the veins of the neck, a mitral systolic murmur and bronchial breathing over both lungs without adventitious sounds. Examination of the blood showed a red cell count of 1·025 millions per c.mm. hæmoglobin percentage of 35 and malignant tertian rings in the peripheral blood. The stools contained hookworm and whipworm ova. Autopsy disclosed emaciation, severe anæmia, anasarca, malarial pigmentation of the liver, spleen and kidneys; hookworm infection of the small intestines and erythropoietic reaction of the bone-marrow. The liver weighed 38 oz., had a wrinkled capsule, was slightly resistant to section; had an anæmic dark-grey cut surface and showed thinned out hepatic foliations and crowded portal spaces. The spleen weighed 22 oz. and had an evenly stretched capsule with faint evidences of perisplenitis and a slightly bulging dark-grey cut surface with prominent trabecular markings. Microscopically, abundant malarial pigment was demonstrable in the phagocytic cells of the constricted hepatic sinusoids and of the engorged capillaries of the splenic pulp, glomeruli and cortex of the kidney. The kidney also showed other changes characteristic of sub-acute nephritis.

Case 8.

C. N., Hindu, male; aged 40 years; admitted on 6th April, 1935, for pain in the abdomen and limbs of 15 days' duration with a temperature of 100°F and pulse rate of 108 per minute. At the time of admission he was ill-nourished, œdematous in the limbs, hyperpnoeic (56 per minute) and showed on examination slight abdominal distension and diminished movements, dullness, increased vocal fremitus and resonance on the left

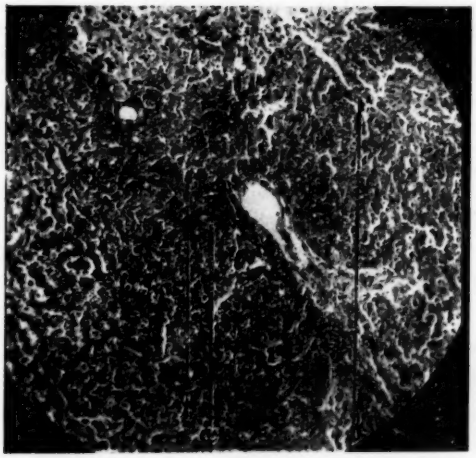

Fig. 4.

Photomicrograph of a section of the liver showing:

(a) normal hepatic parenchyma round the portal space.

(b) degenerative or shrunken hepatic parenchyma further out round the central hepatic venules.

(c) kupffer cells loaded with malarial pigment in the sinusoids of the periportal zone.

(Hæmatoxylin and eosin; apochromat obj. 8 m.m. periplan o.k. eye piece 10 m.m.).

Fig. 5.

Photomicrograph of a section of the lung showing emphysematous alveoli (a) with thinned out walls containing deposits (b) of dark malarial pigment.

(Hæmatoxylin and eosin; apochromat. obj. 8 m.m. periplan o.k. eye piece 10 m.m.).

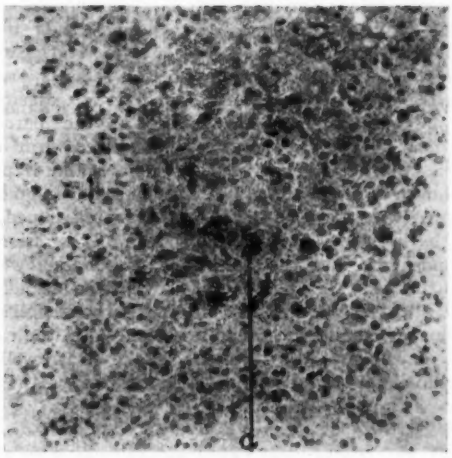

Fig. 6.

Photomicrograph of a section of adrenal medulla showing pigment-laden phagocytic endothelial cells (a).

(Hæmatoxylin and eosin; apochromat. obj. 8 m.m. periplan o.k. eye piece 10 m.m.).

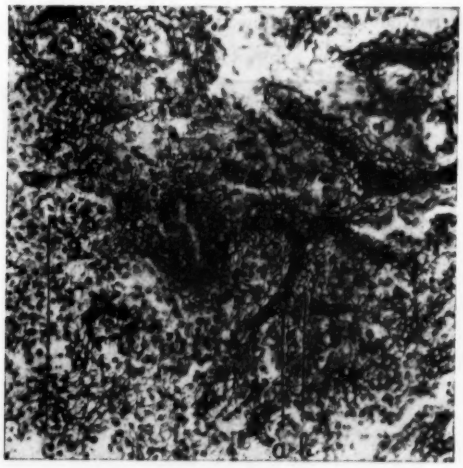

Fig. 7.

Photomicrograph of a section of the spleen showing:

(a) narrow capillaries.

(b) thin reticular covering.

(c) sinuses distended with phagocytic endothelial cells (the pigment is not stained).

(Foot and Menard's silver impregnation technique. apochromat. obj. 8 m.m. periplan o.k. eye piece 10 m.m.

side of the chest and a palpable spleen. The expectoration was copious and brownish black in colour. Autopsy disclosed anæmia; œdema; early peritonitis of the upper part of the abdomen; multiple acute perforating duodenal ulcers; hookworm infection of the bowels; an acute malarial liver (soft, flabby, slate-grey, anæmic with atrophy and slight bile staining of the parenchymal foliations on the cut surface); a dark red firm enlarged spleen (weight 10 oz.); fatty kidneys and hyperplastic bone-marrow. Microscopically, malarial pigment and parasites were present in all the organs examined, including the heart, kidneys, duodenal wall, anterior lobe of the pituitary and the lymphatic glands but were most abundant in the constricted hepatic sinusoids, particularly in the periphery of the parenchymal foliæ, in the pulmonary capillaries and to a less extent in the capillaries and sinuses of the spleen. There was well-marked reticulo-endothelial hyperplasia in the spleen. (Fig. 7.)

Case 9.

V. P., Hindu; male; aged 35 years; admitted on 12th April, 1935, to the hospital in a moribund condition as a case of suspected cholera and died shortly after admission. Autopsy disclosed a well-nourished muscular individual with the usual signs of dehydration, injection of the conjunctiva, hyperæmia and greyish discolouration of the mucous membrane of the entire small intestine, congestion of the lungs, the spleen, the kidneys and the brain. The liver (weight 36 oz.) was soft and mottled red and greyish yellow on the cut surface, in which the parenchymal foliations were thinned out. The spleen weighed 31 oz. The capsule showed slight perisplenitis. The dark red cut surface showed besides prominent trabeculæ small scattered scars surrounded by haæmorrhages. Microscopically, malarial parasites and pigment were found scattered, free and collected inside phagocytic cells in the sinusoids of the liver, in the capillaries of the splenic pulp, the kidneys, the lungs and the suprarenals. The splenic pulp showed comparatively little reticulo-endothelial hyperplasia. The intestinal villi were swollen congested and denuded of the epithelial lining but contained only scanty malarial pigment.

Fig. 8.

Photomicrograph of a section of the duodenum showing the edge of an infarct (a) of the mucous membrane.

(Hæmatoxylin and eosin. apochromat. obj. 8 m.m. periplan o.k. eye piece 4 m.m.).

Case 10.

Male child, 25 days old, admitted to hospital with fever and signs suggestive of abdominal colic and died a few hours after admission. The mother was confined normally in the hospital and discharged after a stay of eight days in it. Autopsy on the child disclosed malarial pigmentation of the liver and the spleen congestion and cloudy swelling of the kidneys; and a juxta pyloric duodenal acute erosion. Microscopic investigation of the viscera showed malarial pigmentation of the Kupffer and endothelial cells of the sinusoids of the liver; pigment and parasites both free and inside phagocytic cells in the splenic sinuses and capillaries and in the suprarenal medulla; changes of diffuse acute nephritis in the kidneys; infarct like wedge-shaped necrotic area (Fig. 8) in the mucosa of the duodenum. An endothelial leucocytic thrombus containing pigment was seen partially including a vessel underneath the infarct (Fig. 9) in the subserous coat. The lung showed congestion and bronchopneumonia.

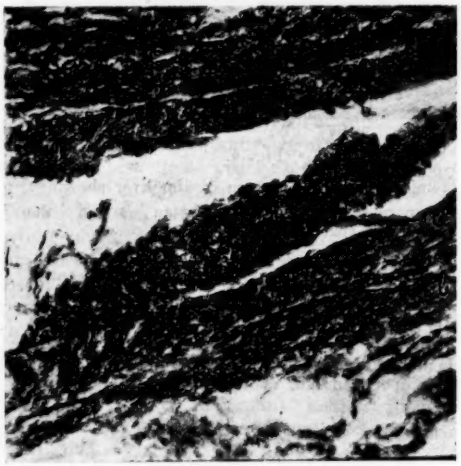

Fig. 9.

Photomicrograph of a section of the duodenum showing a leucocytic (endothelial) embolus (a) inside the lumen of a vessel (b) of the subserous coat.

(Hæmatoxylin and eosin; apochromat. obj. 8 m.m. periplan o.k. eye piece 10 m.m.).

COMMENT

Aetiological Considerations.

Geographical.—In the absence of accurate information about the details of residence for at least a period of three years preceding death in each instance, no useful conclusions can be drawn regarding the malarial endemicity in any particular part of the city or of outlying villages from an analysis of the cases recorded above. Two cases (4 & 7) came from the outlying village of Kasimkota. Two cases (2 & 9) were picked up moribund from the train and brought to the hospital. The rest were either permanent residents of or had been residing in the city for a considerable period of time preceding death. The last case was a child born in the hospital and had not left the city limits.

There can be little doubt that the infection in these cases was locally acquired. Three successive Malaria surveys, by Dr. K. V. Krishnan in Otober, 1925, and in April and September, 1927 by Dr. K. V. Venkataraman, showed infantile splenic rates suggesttive of hyper and high malarial endemicity in many of the suburban villages and a moderate endemicity in certain wards of the town. The large majority of the fatal cases recorded above, however, were from the moderately endemic wards of the town and not from the hyperendemic suburban villages. This is probably explained by the fact that the adult population of a hyperendemic area develop a relative tolerance to the infection and do not show the severe forms of malaria (Swellengrebel, N. H. 1931).

Seasonal.—A seasonal analysis of the cases, shows that (cases 1, 2, 3, 4 and 7) the death in five instances occurred in the colder months of November, December and January and in five of the remaining, in the month of April. Venkataraman (1927) observed from a study of the outpatient records of the town dispensaries, that the malarial incidence begins to mount up, in this town in July with the onset of the south-west monsoon and reaches the peak in September and October. He also noted a smaller peak in March and April which he attributed to the small spring rains. This clinical observation of an increased malarial incidence after each spell of rain, is borne out by the experience in the postmortem room.

Age.—The series under report comprises of one infant, two juveniles, and seven adults of all ages ranging from 25—55 years. This shows that no age group is exempt from or specially liable to the severer forms of malaria.

Immediate cause of death.—The immediate cause of death in seven of the ten cases under report was undoubtedly the malarial attack. Peritonitis due to a perforated duodenal ulcer was responsible for death in one of the adult cases. The two juveniles apparently died of complications or sequelæ and not from the severity of the malarial attack. In both these instances (cases 3 and 7) the complicating circumstances of a previous (1 month) attack of chicken-pox in one (case 3) and a co-existing hookworm-infection in the other(case 7) make it difficult to assess the share which malaria had in bringing about the terminal conditions of cancrum oris and severe anæmia respectively. However, the history of the pyrexial attacks preceding admission and the post-mortem evidence of active malaria in the liver and the spleen in both the cases and the discovery of malignant tertian parasites in the peripheral blood in one of the cases (case 7), in which the blood was microscopically investigated, make it strongly probable that malaria might have been the major contributory factor in the supervention of the terminal complications.

What relation, the acute duodenal ulcer, which by perforation led to a fatal termination in case 7, has to the acute malarial changes seen post-mortem will be discussed later.

Diathesis.—It will not however be out of place to draw attention here to certain peculiarities of diathesis, noticeable in some of the cases and discuss later their relationship to the severity of the malarial manifestation. A hyperplasia of the lymphoid tissue in some of the usual sites of aggregation of lymphoid tissue, along with a hypoplasia of the abdominal aorta was observed post-mortem in four cases (cases 2, 3, 4 and 7). In case 6 there was besides a remarkable hypertrophy of the suprarenal.

Clinical Types.—The clinical complex of the attack in the cases under report is very varied and simulated a variety of conditions. Respiratory signs and symptoms were the presenting features in three instances (1, 4 and 8). A congestive cardiac failure characterised the termination in one case (5). The second case was in a condition of typical coma from the time of admission till the termination. The 9th case was frankly choleraic in outlook and the 10th case

suggested clinically a gastro-intestinal lesion. Anæmia and sepsis were the dominant features of cases 7 and 3 respectively. The course was invariably rapid and lasted rarely more than a week.

Individual signs and symptoms.—The attack in the majority of the cases was attended with pyrexia but the febrile attacks were remittent and the temperature fluctuations moderate. The outstanding individual clinical manifestation observed in this series and not usually emphasized in connection with acute malaria was the respiratory condition, *viz*: hyperpnœa (respirations ranging from 32-40 per min.), bronchial type of breathing, areas of diminished vocal resonance, sometimes crepitations, and even dark brown expectoration. Varying degrees of the above-noted chain of respiratory events were observed in this series four times, and suggested an early pneumonic process in at least two instances. The cardiac manifestations showed no striking repetition of any particular clinical picture in the series. An acute congestive cradiac failure with pain referred to the right side of the epigastrium probably due to sudden congestive distension of the liver, characterised the fifth case and a slowly developing myocardial insufficiency with mitral systolic murmur, breathlessness on exertion, anasarca, ascites, distended veins in the neck, hepato and splenomegaly, secondary to anæmia was seen in the seventh case. Tachycardia, and marked pulsation at the root of the neck probably suggesting a dilatation of the aortic arch was present in the first case. Apart from the choleraic manifestations of severe vomiting and diarrhœa attended with collapse seen in the 9th case, in which the onset of death soon after admission precluded a clinical examination no constant conspicuous signs of gastro-intestinal disorder were encountered. The absence of palpable or conspicuous splenic or hepatic enlargement in the majority of the cases (1, 2, 3, 4, 5, 8 and 10) is noteworthy. The enlargement of these organs in the 7th case was apparently cardiac in origin and not malarial. Case 9 also showed a well-marked splenic enlargement.

The discovery of M. T. rings in the peripheral blood was noted only in two instances (1 and 7). In the majority of the other instances on account of the atypical nature of the attack, a search for the malarial parasite was probably not undertaken. But in case 6 the peripheral blood was definitely free from malaria parasites.

Morbid anatomy. Gross.—Among the autopsy findings the absence of any remarkable enlargement of the liver and spleen is noteworthy. The average weight of the liver was well below the normal. The spleen showed a weight above 20 ounces, only twice and in both instances the organ showed evidences of a more chronic disease, such as, patchy fibrosis of the pulp and capsule, scattered hæmorrhages and infarcts in the pulp. This absence of increase in weight or size of the liver is in keeping with its anæmic condition, the absence of biliary distension of the ducts and the presence of a generally atrophic appearance of the parenchymal foliations usually noted on the cut surface. Congestion of the viscera was only noticed in rare instances (case 2). The greyish discolouration due to the accumulation of the malarial pigment was seen post-mortem in most of the organs but in varying intensities in different organs in different cases. The liver, the spleen, the lungs, the bone marrow and the suprarenal medulla were, however, constantly pigmented. The cerebral cortex showed the leaden grey hue only in case No. 2. Perceptible greyish pigmentation was observed in the heart in cases 2 and 4, in the kidneys in cases 4,5 and 7 and in the intestinal mucosa in case 9. As regards the other morbid anatomical changes, there is no one finding which is constantly found in association with acute malaria. But the following deserve mention. The lungs showed besides greyish pigmentation, ischæmia or congestion, emphysema, and areas of superficial collapse, and sometimes broncho or lobar pneumonia. The occasional occurrence of acute gastric erosion or perforating duodenal ulcer in two instances (cases 8 and 10) deserves notice. Hæmorrhagic manifestations were noticed twice (cases 5 and 3) and were associated with congestion of the viscera. The lymphadenopathy observed in cases 2, 3, 4 and 6, the hypoplasia of the aorta seen in cases 4 and 6, the persistence of the thymus in case 4 and the adrenal hypertrophy seen in case 6 are also noteworthy. It is also necessary to point out that the small intestines in the case with choleraic manifestations showed no typical changes beyond a diffuse hyperæmic flush of the mucous membrane. A slightly irregular surface of the liver suggestive of early cirrhosis was only encountered once (case 6).

An irregularly scarred kidney was found post-mortem in case 1, in which a heavy M. T. infection was seen in the peripheral blood ante-mortem. There were no evidences of arteriosclerosis elsewhere

in the body. The incidence of cancrum oris (case 3) in a child of three in association with malarial attacks, though noteworthy, can by no means be regarded as a finding specific to malaria.

Microscopic examination—shows in acute malaria a wide distribution of the parasites and pigment in the capillaries of the viscera, and a more particular concentration in those strongholds of the reticulo-endothelial cells where they are in direct relation to the blood capillaries. They are the liver, the spleen, the bone marrow, the lungs and the adrenal medulla. The lymphatic glands only rarely contain the malarial pigment and then only in insignificant amount. In the majority of the cases, unlike what obtains in chronic malarial infection, the liver appears to have a larger share of the pigment and parasites than the spleen. In the liver, however, the periportal zone of the sinusoidal bed showed the pigment of the parasites in greater concentration than the central zones. Occasionally, in rare cases the capillaries of a particular organ like the brain (case 2), the lung (case 5), the kidney (case 7), the heart and the suprarenals (case 6), the intestines (case 9), may show a greater concentration of them than in the other organs. The pigment particles and the rounded chromatin granules of the parasites were seen chiefly free in the lumen of the constricted capillaries and only to a lesser extent inside the Kupffer and endothelial cells. On the other hand, in the dilated capillaries of congested organs the malarial pigment was mostly intracellular inside the phagocytic endothelial cells, in the capillaries of the brain (case 2), when R. B. C. with malarial parasites are observed in the form of plugs, the outlines of the bodies of individual parasites are distinctly recognizable, though in the viscera like the liver, the spleen and the lungs, the recognition of such outline of the parasites is very difficult. This is probably due to the absence of the destructive phagocytic action on the part of the endothelial cells of the cerebral capillaries. Besides the above peculiarities in the distribution of the malarial pigment and the parasites, the following other features are worthy of note:

(1) The state of constriction of the visceral capillaries in the majority of the cases and of congestion in a few (cases 2 and 5).

(2) The fairly pronounced swelling and proliferation of the reticulo-endothelial cells in the capillaries of the splenic pulp and malpighian bodies, in the sinusoids of the liver, in the capillaries of the pulmonary alveoli, the bone marrow and sometimes the adrenal medulla.

(3) The absence of any increase in the pericapillary reticular fibres in the liver and spleen, in spite of the R. E. proliferation.

(4) The presence of areas of emphysematous and collapsed alveoli with sometimes thickening of the alveolar walls due to œdema and proliferation of phagocytic endothelial cells. Occasionally the alveoli contain pigmented phagocytic cells (case 6).

(5) The central degeneration and collapse of the capillary bed in hepatic parenchymal foliæ in some instances. This observation has also been made by Klotz Oscar(1929).

(6) The absence of any notable quantities of pigment and parasites in the swollen hyperæmic denuded mucosa of the small intestine in the case with choleraic manifestations.

(7) The presence in case 10 of ischæmic infarction of the duodenal mucosa with underlying obliterative endocapillaritis in the submucosa and a pigment containing leucocytic thrombus in a subjacent subperitoneal vessel.

(8) The absence of adequate leucocytic reaction in the necrotic lesion of the mouth and the presence of a granulopoietic reaction in the lymphatic glands in case 3 are suggestive of an agranulocytic condition probably of malarial origin, but lacks unfortunately, the confirmatory evidence from a clinical examination of the blood and a post-mortem investigation of the bone-marrow.

(9) The presence of changes of acute, subacute and even chronic nephritis in the kidneys in different instances.

(10) The presence of well-marked glial reaction and neuronal degeneration in the brain, even in the absence of appreciable amount of malarial pigment and parasites in the constricted cerebral vessels (case 1).

DISCUSSION

The cause of the serious manifestations in malaria.

Plasmodium falciparum is commonly held responsible for the pernicious or serious forms of malaria which endanger life. But instances of such manifestations, including even choleraic attacks, have been recorded by Vellejo Najera in about 10% of experimental infections with even P. Vivax. It is also

generally agreed that nephritic complications are more common with Quartan malarial infection, though the manner of the genesis of such a complication is differently explained by different workers. Some of them hold the view that the greater traumatization of the kidney by the coarser granules of pigment of the quartan malaria is responsible for the onset of nephritis, while others (Goldie, H., Gigloili, G., 1930) attribute it to the longer neglect of the milder manifestations of the disease. Schuffner (1934) attempted to explain the disastrous effects the malarial infection of the Gangetic Terai and Duars had on the Desi labour imported from the plains, by presuming an increase in the virulence of the already existing infection, either due to a change in the environment or to the influence of the local anophelines. Again, Sinton appears to advance a somewhat similar view, when he attributes the onset of the serious manifestations of Black-water fever, not only to a special parasitic strain (P. tenue) but also to the possible influence of its passage through certain species of Anopheles. The experience gained by therapeutic inoculation of malaria no doubt shows that the mosquito induced malaria is of a severer nature than that induced by direct inoculation of malarial blood. A strain of the parasite, weakened by continued multiplication by Schizogony, no doubt becomes more resistant to treatment after passage through the sexual cycle in a mosquito; but so far there is no direct evidence pointing to a permanent mutation in the pathogenic characters of a strain of Malarial parasite by its passage through any particular species of Anopheles. On the other hand, certain evidences suggest that the seriousness of the manifestations of the malarial attack is to a great extent determined by constitutional factors—acquired and inherited—of the human host.

Lowered Resistance.

It may be pointed out here that the serious manifestations of malaria are usually seen in areas of low endemicity like the town wards of Vizagapatam to which the majority of the cases reported in this paper belong, or in the non-immune children and immigrant adults in hyper-endemic areas (Chataway, J. H. H. 1928). In the permanent population of hyper and highly endemic areas, like those of the agency areas in this district, slow education of the body defences, by repeated attacks of the disease from infancy, leads to a balanced state of comparative health and tolerance to the disease, in which the balance of the parasitic multiplication and destruction in the body is below the concentration necessary to produce symptoms. Instances of the resistance of such people to reinfection by inoculation have been recorded by Manson Bahr (1929) Cica et al (1929); Eustatziu and Ionesco (1929). It has also been shown that this tolerance to parasitization is strictly specific and that the balance may be upset by circumstances, which depress the defence mechanism of the body, such as fatigue, exposure to heat or cold, alcoholism, surgical trauma, therapeutic inoculations, such as, injections of arsenobenzol, colloid salts and protein shock, childbirth and infections like influenza (Trabaud J, 1931). Blenanchard and Pin report a virulent recrudescence of malaria due to the onset of pulmonary tuberculosis six years after the primary malarial infection in one instance. In the anti-malarial defence of the body, in addition to the well-known role played by the reticulo-endothelial system, there is alleged to be also a certain amount of phagocytosis of the merozoites by polymorphs (DeLangen, C. D. 1932) and lysis of the same (95% Knowles, and Das Gupta, 1930) by the blood serum (Row R. 1928). The presence in the serum of immune anti-bodies in convalescents from malaria has, however, been denied (Phlen, A. 1928). Thus, an inherited weakness or depression by disease or other causes, of these forces, may throw the balance in favour of the parasitic multiplication and development of serious manifestations. Rabinsky (1931) refers in Kiev to the loss of virulence in the malaria parasites in refugees from the Volga valley due to improved conditions of life and colder temperature. It is significant to point out here, that in the series reported in this paper, not only all the cases are non-immune recent infections, but also being to a class, of very low economic status and general resistance. The attempt to raise the economic standards of the population in malarial areas as a part of the anti-malarial scheme of bonification, takes cognisance of this fact.

Heightened sensitiveness.

From the foregoing morbid anatomical study, besides a breakdown of the mechanism of defence, the existence in some individuals of an increased sensitiveness to the effects of the malarial paroxysm appears to deserve consideration, while seeking the cause of serious or fatal sequelæ. According to Abrami, the

malarial paroxysm is the manifestation of anaphylactic shock following the sudden discharge into the blood plasma of considerable numbers of malarial merozoites and much hæmozoin pigment particles, both foreign to the plasma. Besides the clinical evidences of anaphylaxis like urticaria paroxysmal hæmoglobinuria and asthma, sometimes seen in malaria [Navarro and Spangenberg (1929), Ferraro (1919), Eyermann and Straus (1930)], Sinton, Orr and Ahmed (1928), and Sinton and Kehar (1931) have produced further biochemical and physico-chemical evidences, such as increased glycogenolysis, lowered surface tension and rise in refractive index and plasma bilirubin of blood, analogous to those attending anaphylactic shock, in the changes accompanying the malarial paroxysm. It is a well-known fact that some individuals are more sensitive to the ill-effects of shock than others. The particularly high sensitiveness to shock and proneness to sudden death from accidents or after surgical operations, of individuals with a lymphoid diathesis —the extreme instances of which constitute the condition of " status lymphaticus ",—has often found expression from pathologists. In view of the above considerations, the occurrence of anatomical evidences of a lymphoid diathesis, such as preponderance of lymphoid tissue, vascular hypoplasia, persistence of thymus, and adrenal hypertrophy in some of the cases reported in this paper should not be regarded as merely accidental findings, but as the hallmarks of a diathesis predisposing to hypersensitiveness to the effects of the malarial shock.

Pathogenesis of serious malarial manifestations.

The grave manifestations of pernicious malignant tertian malaria have been attributed to (1) the intensity of infection and destruction of R.B.C. (2) the discharge during sporulation of large amounts of toxic material from disintegrating merozoites, (3) from the capillary occlusion by parasitic plugs. Regarding the first, the parasitic concentration necessary for the onset of pernicious symptoms has not been worked out so far with any degree of accuracy. On the other hand, we have sometimes observed a very severe parasitization of the peripheral blood corpuscles without any evidence of pernicious symptoms. None of the cases reported here showed an excessive parasitization of the red blood corpuscles. On the other hand in many instances the peripheral blood failed to show parasites. Again, the existence of malarial toxins, capable of producing the pernicious symptoms, appear to be at present equally speculative. Though Rosenaus' experiments are held to prove the existence of a fever producing toxin in the mechanism of the malarial paroxysm, the balance of evidence appears to be in favour of considering the malarial paroxysm as a feature of anaphylactic shock. The presumed discharge of toxins of the nature of endotheliolysins and hæmolysins during malarial paroxysms are based on the occurrence of changes, which can be explained by other more easily demonstrable ways, such as, the hæmolytic action of the malarial pigment (Brown) and the degeneration and destruction of the phagocytic endothelial cells by the ingested pigment and parasites. In the reported cases, purpuric hæmorrhages were seen only when the viscera were congested. There was no instance of any appreciable jaundice. On the other hand, both clinical and anatomical evidences in pernicious attacks of malignant malaria point to the tendency to a varyingly localised visceralization of the parasites. The clinical division of the pernicious attacks into cerebral, algid, bilious, pneumonic and cardiac types indicates that one of the viscera becomes the principal seat of localization of the infection. Anatomical evidence confirms this. In the cases reported it will be seen that in acute malaria, though the distribution of the parasites and pigment is usually wide-spread throughout the body and in the majority of instances most abundant in the sinusoids of the liver, yet sometimes the capillaries of one or the other organs, like the lung, the brain, the heart, the kidney, the adrenals, or the gastro-intestinal tract show them in greater abundance.

The mechanism of visceral localisation and manifestations:

In explanation of the localization of the infection to particular viscera in pernicious malaria, the following possibilities have been mentioned: (a) embolic arrest of sporulating parasites in the capillaries on account of their excessively large size or ovoid shape, (b) capillary occulsion by swelling and degeneration of the lining endothelium, (c) agglutination of parasites into embolic masses. The first possibility appears to be a very remote one, when it is remembered that pernicious manifestations are seen only in about 1% of the cases of malaria (Stott), that embolic manifestations like petechial hæmorrhages of the skin, focal necroses of the liver, focal lesions of the kidney are rarely seen in acute malaria and that the large pigmented mononuclears and sometimes even megakaryocytes are seen circulating in the blood without being caught in the capillaries. Ischæmia due to

capillary constriction or occlusion, however, appears to us, to form the morbid anatomical basis of at least some of the serious malarial manifestations. Thus the central degeneration in the liver seen in some cases, the infarction of the duodenal mucosa found in the case 10, the cerebral ischaemia and glial reaction, which probably was responsible to the onset of coma in case 1, the ischæmic emphysematous condition of the alveoli of the lung in some instances and probably the acute multiple perforating duodenal ulcer seen in case 8 appear to be of such origin. No doubt an extensive swelling, degeneration, disintegration and proliferation of the endothelium accompany the malarial attack; such a process is confined chiefly to the phagocytic endothelium of the capillaries in the liver, the spleen, the adrenal, the bone marrow and the lungs and should lead in these organs to a capillary stasis rather than to an ischæmia. It must, however, be pointed out here, that emboli of desquamating phagocytic endothelial cells and pigment may sometimes lead to occlusion of larger vessels, as the one which apparently caused the infarction of duodenal mucosa in case 10. (Figs. 9 & 10). On the other hand, a study of the capillary walls, by staining their reticular network with the silver impregnation technique, shows especially in the liver that the ischæmia is due to a capillary constriction; the central parenchymal cords which show degeneration, are farthest away from the reduced portal blood stream which nourishes them. Also the greater concentration of the pigment and parasitic remains in the periportal zone of the capillary bed of the hepatic foliæ (Fig. 4) further strengthens the view that the process of removal from the infected blood of the parasites and their particulate products of disintegration by phagocytic activity is facilitated by this narrowing of the meshes of the capillary sieve of such reticulo-endothelial strongholds as the liver and the spleen by capillary constriction, which takes place sometime (hot stage) during the malarial paroxysm or after discharge of merozoites. According to Muller (1926) there is an antithetic reciprocal relationship between the splanchnic and peripheral capillary beds. Hence one may presume that a visceral vasoconstriction synchronises usually with the hot stage attended by peripheral vasodilatation. This is borne out by the histological finding of engorgement of the organs in some instances and ischæmia in others. If this sieving mechanism by which the parasite laden cells are filtered out through constricted capillaries is inefficient, either due to lack of vasomotor tone or reticulo-endothelial deficiency of these organs a large escape of the parasites to other organs, like the lungs, the heart, the central nervous system etc., takes place and evokes various visceral manifestations peculiar to the respective organs, by the sporulation of the parasites in these situations. In this selective localization of the parasites in the several viscera, whether it is the agglutination of the parasites or the condition of the tone of the vessels in the respective viscera, that leads to their arrest needs further consideration. The presence of melanoflucculins, ferroprecipitins, and probably also of agglutinins for parasitized R.B.C., in the blood of the malarial subject, has to be admitted from the reports of the investigations of Henry, (1928-1929), Taliaferro and Taliferro (1929) and Le Bourdelles and Liegeois (1929), Picado (1929) Row (1931) and others. But although the agglutinins circulating in the blood reach all organs, it is usually only one of them that is picked out in pernicious malaria. Besides, though our material included cardiac, respiratory and gastrointestinal types, of pernicious malaria, the capillaries showed plugs of parasitized R.B.C. only in the brain in the case with cerebral manifestations. In other cases, we observed only an excess of the parasitic remains in the concerned organs. Further, the absence of distortion, shrinkage or crumpling of the parasitized R.B.C., forming the capillary plugs in the brain, can hardly be reconciled with a process of agglutination prior to destruction. On the other hand the dilated and engorged condition of the capillaries (Fig. 2) observed in this case suggests a capillary stasis and engorgement due to some local vasomotor disturbance, giving a favourable opportunity for the merozoites discharged by the sporulating schizonts to parasitize the R.B.C. in capillaries whose endothelium is devoid of phagocytic properties. In the causation of this vasomotor imbalance or local hyperæmia of the affected organ, one has to think of factors extrinsic or intrinsic *i.e.*, toxins or bacterial infections, independent of malaria or a specific sensitization from previously cured attacks of malaria. That pernicious malarial attacks do not occur in the continuously infected adult population of hyperendemic areas, tolerant to the particular species of parasite, favours the latter possibility. However, the question must be left open for the present, pending the accumulation of further observations on these lines.

Some Salient Clinical and Morbid Anatomical Features of Acute Malaria

The Vascular Phenomena of malaria.

The peripheral pallor in the cold stage and the flushed moist skin of the hot stage are well-known clinical phenomena of the malarial attack. An analogous pallor and resistance to the flow of the injected fluid, have been observed occasionally in intravenous injections, by the junior author in the vessels of the ear of some of the rabbits which had been treated previously with repeated intravenous injections of suspensions of amorphous silica. The coincidence of the rigor and the cold stage with the discharge of the merozoites into the blood stream, marking the commencement of the anaphylactic shock is also well known. The occurrence of a visceral (splanchnic) engorgement, in antithetic reciprocal relationship to the peripheral ischæmia, has been pointed out by Muller and confirmed specially with reference to the liver, an hour after the induction of shock by Weil and Eggleston (1916). The visceral vasoparesis early in shock has been attributed to vasoconstrictor paralysis by Biedl and Kras, Pearce and Eisebrey, and Simmons (quoted by Weil). This visceral engorgement is later followed by vasoconstriction of the organs during the hot stage and recovery from the shock. The finding of ischæmic contraction of capillaries in the internal organ in some cases and of capillary engorgement in others, bears out the occurrence of the above vascular sequence in malaria. But it was not possible for us, in the absence of any clinical observations on the condition of the skin capillaries at the time of death, to define the exact correlation of the peripheral and visceral vascular condition. Yet it may be pointed out here that both phases of the vascular phenomena have a protective value, viz: the initial visceral engorgement brings the maximum available amount of the blood containing the discharged merozoites to the reticulo-endothelial strongholds (the liver and the spleen); the subsequent vasoconstriction throws out the filtered blood into the general circulation leaving the phagocytes of the liver, spleen and other R.E. concentration points, to deal with their captive parasites and their remains.

Liver and Spleen in acute malaria.

Much diagnostic emphasis is usually laid on the splenic and sometimes hepatic enlargement in malaria. But Surbek (1931) notes that in 36% of B.T. and 70% of M.T. infections, the spleen is not palpable. The autopsy and clinical findings in the herein reported cases also point to the absence, as a rule, of noticeable enlargement of these organs in acute malaria. Both these organs may show a moderate or scarcely palpable swelling due to engorgement in the cold stage and the patient may even complain of pain in these regions—the pain being local or referred—due to the sudden over-distension of the capsule; the ischæmic depleted organ, however, shows no enlargement in the hot stage. The enlargement of the spleen in chronic malaria is permanent and is mainly due to the excessive R.E. proliferation and storage of malarial pigment. A further point of interest is that in acute malaria the sinusoids of the liver, especially those adjoining the portal spaces contain, more of the granular pigment and parasites, principally in swollen Kupffer and endothelial cells, than those of the splenic pulp. But the liver unlike the spleen never shows massive deposits of stored hæmozoin or heavily pigment-laden phagocytes. In the spleen reticulo-endothelial, proliferation and pigment accumulation are seen most markedly inside dilated pulp sinuses; the intersinus capillaries of the pulp are fine and thin walled, with no apparent increase in the reticular fibrils in their walls. (Fig. 8). Photakis (1929) refers to this finding as characteristic of hyperacute malignant fatal form. It appears that in acute malaria the liver is the principal sieve for the parasites and the spleen the chief store for the pigment.

The Lung in malaria.

Asthmatic (Thomard Neumann, 1928) and bronchitic (Zallocco, A. 1928, Navarro and Spangenberg 1929) and laryngeal (Cawadas, E. 1929) manifestations of malarial origin and yielding to quinine therapy have been recorded in the literature. Duprey, A. B. (1927) notes deposits of malarial pigment in the lungs of tropical asthmatics comparable with the deposits of coal dust in the lungs of coal heavers. A striking frequency of respiratory clinical manifestations of asthma, bronchitis and even pneumonitis was a notable feature of our series of cases.

Microscopically, the lung in such cases showed either emphysema, ischæmia and accumulation of malarial pigment in histiocytes of the interstitial tissue (Fig. 6) or emphysema, thickening of alveolar walls due to capillary congestion, œdema, reticulo-endothelial proliferation and malarial pigmentation

(Fig. 1A). Actual pneumonic consolidation was rare.

The Gastro-Intestinal Tract in Malaria.

The occasional occurrence of algid manifestations of dysentery and choleraic diarrhœa in malignant malaria is well known. Reference has already been made to the absence in the instance of choleraic malaria under report (case 9 of our series) of parasitic or pigment emboli in the intestinal capillaries, though usually described in such conditions by other authors. The suggestion has also been made elsewhere in this paper whether such manifestations are not the anaphylactic features of a hyper-sensitization of the digestive tract. Also instances of appendicular attacks [DePenning, (1928) Luna Ganan, J. (1928)] hypo and hyperchlorhydric dyspepsia, [Ruge, Löhfeldt, Knabe, Eisenberg and Kunert, (1929)] and hæmatemesis and malæna (Bonne and Ros Kott, 1929) of malarial origin yielding to quinine therapy are on record. But attention so far has not been drawn to the possibility of the malarial infection favouring the formation of gastric or duodenal ulcers. The infarction of the duodenal mucosa (Fig. 9) with a pigment containing endothelial embolus inside the lumen of the subjacent vessel in the subserous coat (Fig. 10) in a child of 25 days, and showing no other lesions post-mortem in the internal organs than those of acute malaria (in case 10 of our series) is highly suggestive of an etiological relationship of malaria to at least some of the gastric and duodenal ulcers of the tropics. In addition to a further herein reported case of perforating duodenal ulcer associated with malaria in an adult, several other instances of such association have been observed by us and the subject is under further investigation.

The Kidney in Malaria.

The occurrence of nephritis and albuminuria in all types of malaria and, probably, more particularly in quartan infection, and the alleged reason for the albuminuria have been mentioned already. Giglioli records nephritis in 29·3% of quartan and 68·9% of benign tertian infections in British Guiana. Surbek (1931) refers, (1) to a renal reaction most commonly accompanied by albumin and casts in the urine being most common in malignant tertian infection, (2) acute nephritis and (3) to subacute parenchymatous nephritis, attended with ascites, due to quartan malaria in children. All the three types respond to treatment with quinine, but the last tends to recur. Zallocco (1929) observed albuminuria more commonly in children; twice as much in subtertian infections as in benign tertian. Jansco and D'Enger (1931) mention an acute hæmorrhagic type of nephritis, setting in early in some cases of malignant tertian malaria. They also refer to chronic nephritis in chronic B.T. and quartan malarial infections. Struthers (1928) reports recovery in 4 to 6 days after treatment with quinine, in a case of acute nephritis with anasarca due to M. tertian. Akowbjanz (1928) stresses on the importance of examining every renal case for malaria in Turkestan and also remarks about their ready response to quinine. Micheletti (1930) observed collection of parasites in the glomeruli, pigment in the capillary endothelium and tubular degeneration in the surrounding area. Malarial pigment and parasites have been frequently observed in our material. The pigment is usually found in the form of finer granules in the glomeruli and in coarser particles in the tubules. The glomerular involvement showing endothelial proliferation, swelling and sometimes collapse (Fig. 3) has a patchy distribution. The tubular degeneration also has a correspondingly focal distribution. The acute focal nephritis appears to be due more to the direct response to the lodgement of the pigment and parasites in the glomeruli than to the effect of a dissolved malarial toxin.

The Central Nervous System in malaria.

A large variety of cerebrospinal manifestations of malarial origin, such as, convulsions, particularly in children with alcoholic, epileptic or syphilitic congenital taint (Zallocco 1928) hemiplegia following convulsions in infants (DeLuca 1930); somnambulism; Parkinsonian symptoms (Hakim, A. 1931); bulbar symptoms, such as dysarthria and hemiplegia with Babinski's sign, following recovery from unconsciousness; (Schmidth 1928); epileptiform fits and psychoses resembling those of *petit mal* and alcoholism [Trabaud, (1930) and Sivamani, V (1928]; sciatic neuritis [Fiorentini, (1929)], responding to antimalarial treatment, have been reported. In the two instances of malarial coma in our series, the brain showed microscopically a capillary engorgement with parasitization of all the R.B.C. in the capillaries and evidences of cerebral œdema in one case (case 2) (Fig. 2) and cerebral ischæmia and diffuse glial reaction and neuronal degeneration in the other (Fig. 1).

Summary

Introduction: stressing the importance of a return to the study of the disease in man from the study of the mosquito in the anti-malarial work in the tropics.

Case report: giving brief resume of the clinical, autopsy and microscopic examination notes of ten cases of acute fatal malaria.

Comment on the above, pointing out the following features of the cases:—

1. The low endemicity of malaria in the areas, to which the cases reported belonged.
2. The existence of a lymphoid diathesis or endocrine imbalance in several of the cases.
3. The peculiarities in the distribution of the malarial pigment.
4. The state of the blood vessels in the viscera.
5. Certain striking morbid anatomical findings.

Discussion

The cause of the serious manifestations in acute malaria; the visceral localization of the parasites in pernicious malaria; the nature of the vascular phenomena of malaria and the relation of some of the important visceral clinical manifestations to the morbid anatomical lesions in the respective organs are discussed.

Conclusion

Acute malaria is attended by anaphylactic phenomena, which may cause serious manifestations in sensitized individuals or in those with a lymphoid diathesis, particularly sensitive to shock.

Vasomotor disturbances play an important part in the pathogenesis of the visceral manifestations.

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ANTERIOR SHOULDER AS A GUIDE TO THE ENGAGEMENT OF THE HEAD AND THE PROGRESS OF LABOUR

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Bombay

In obstetric practice, it is generally recognized that if the skill of abdominal examination for distinguishing different conditions is well cultivated, the vaginal examination, which is fraught with so much risk of introducing sepsis, would be relatively less necessary. By feeling the different parts of the fœtus in the latter part of pregnancy, the diagnosis can be made as regards the presentation and position; and the engagement of the head and the cephalo-pelvic proportion can also be determined. When these points are ascertained long before labour sets in, they help a good deal in knowing beforehand what the course of labour would be. This is of material importance since proper judgment could in time be formed regarding the management of an individual case. In later months, the parts of the fœtus are so much enlarged and it is so close in contact with the uterine wall, as to enable them to be readily distinguished by their distinctive features. Among these parts that can be easily felt is the anterior shoulder, the feeling of which is of practical utility, as it helps to make out what the position of the child is, and how far the head lies in relation to the pelvis; but what is more than all, it becomes a good guide in determining the progress of labour. In these days many cases are put on trial labour. They have to be watched with assiduity and the progress noted. The latter can be known safely, without exposing the patient to risk by frequent abdominal palpation. To attain the purpose some part of the fœtus, usually of the head near the chin is determined and its descent during labour is taken to indicate the progress. But in this respect the anterior shoulder serves better purpose and possesses distinct advantages. First, the anterior shoulder is closer in contact with the uterine wall than the chin; secondly, by practice the anterior shoulder can be exactly located and its situation more precisely marked on the abdominal wall than the chin; thirdly, its descent can be easily followed; fourthly, what is yet important, as the anterior shoulder approaches the central line and crosses it and goes over to the other side, it at once indicates especially in the occipito-posterior position that the head is undergoing internal rotation.

The anterior shoulder can be felt as a triangular projection above the groove representing the neck. To feel it the examiner has to stand on the right side of the patient looking towards her feet. First, the head and the groove have to be ascertained by the pelvic grip. Leaving the groove, as the fingers are drawn up they come upon the anterior shoulder, which can be recognized by the prominent angular projection. Students attending antenatal clinics have first to be pointed out the anterior shoulder twice or thrice and they will be able to locate it afterwards. By noting its exact situation, the different positions of the vertex presentation can be verified. To facilitate recognition, by taking certain landmarks on the abdominal wall, certain regions can be imagined, the landmarks being the central line and the para-rectal line on either side. Thus between the central line and the left para-rectal line is the left median region while the part outside the left para-rectal line is the left lateral region. In the same way on the right are the right median and the right lateral regions. In the first position of the vertex presentation, the anterior shoulder is in the left median region while in the fourth in the lateral region; in the second it is in the right median region and in the third in the right lateral region. It may be conceded that by noticing the direction of the groove, the anterior positions can be differentiated from the posterior, the groove being

Fig. 1—Head floating.

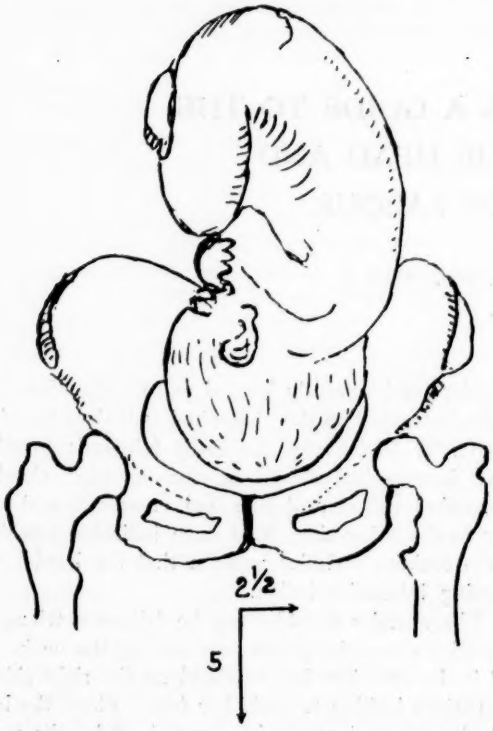


Fig. 2—Head engaging.

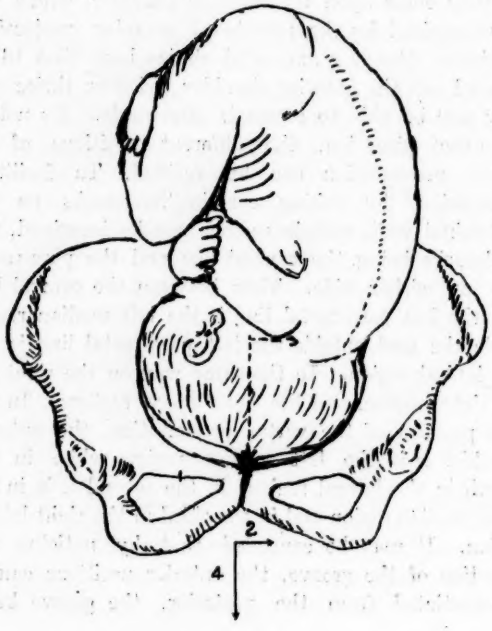


Fig. 3—Head engaged.

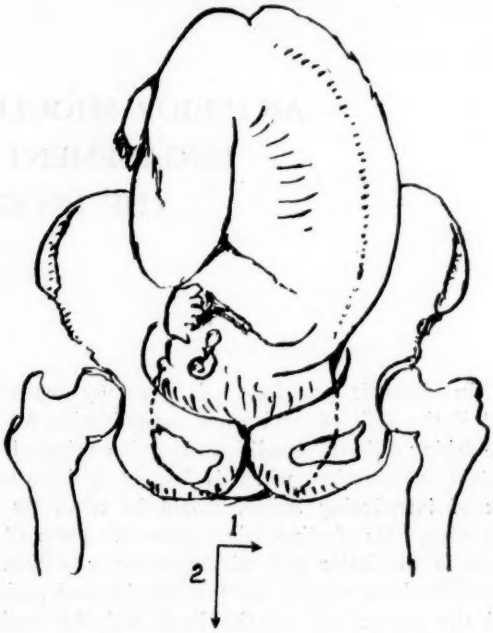
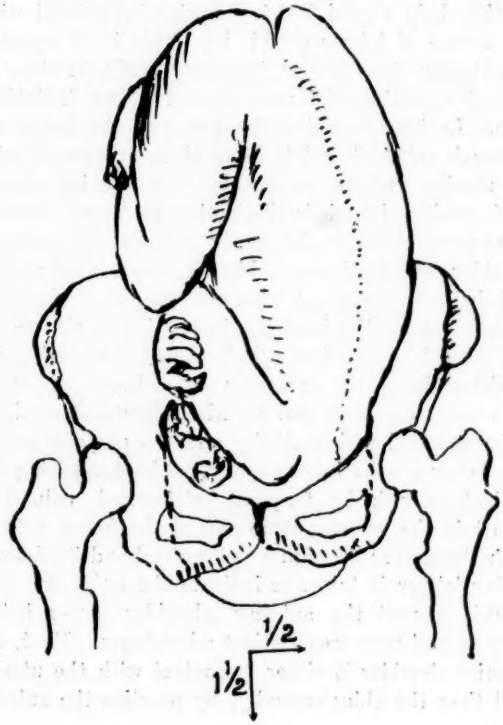


Fig. 4—Head on the Pelvic floor.



oblique in the anterior and transverse in the posterior. The left and the right anterior positions, namely the first and the second, can be distinguished by noting how the groove runs, in the first from right to left and in the second from left down to the right. But as the direction is the same, viz. transverse in both posterior positions, it is the location of the anterior shoulder which helps to distinguish between the third and the fourth position. The height of the anterior shoulder from the top of the symphisis pubis can be measured and from it the relation of the head to the pelvis can be judged. It is the usual practice of the author to measure the height of the anterior shoulder

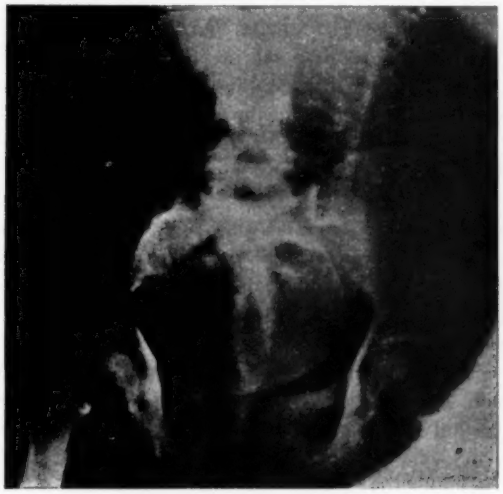
in every case attending the antenatal clinic and the measurements given below are the result of the observation on several hundreds of such cases examined during the last ten years. The heights are as follows:—

When the head is above the pelvic brim	...	... $4\frac{1}{2}''$ to $5''$
When in the brim	...	... $4''$
When in the mid cavity		... $3''$
When at the obstetric outlet		... $2''$
When on the pelvic floor		... $1\frac{1}{2}''$

The situation of the head in the pelvis is confirmed by vaginal examination. Again, the other guide is the engagement of the head when it is almost all engaged, nearly a quarter of the head can be felt above the brim and the height of the anterior shoulder is then but two inches from the top of the pubis; when the head is in the midplane, the half of the head can be felt above the brim and the height is three inches, when in the superior strait or the brim, three-fourths of the head is above the brim and the height of the anterior shoulder is four inches; when lying above the brim, the whole of the head is palpable from the abdomen and is easily movable from side to side, and the height of the shoulder is then between four and a half and five inches.

The above estimates are nearly correct and form a good basis for judging approximately the relation of the head to the pelvis. They are especially useful in estimating progress in test labours.

Not only can the height of the anterior shoulder be measured but its distance from the central line can be ascertained. In anterior positions the distance between the anterior shoulder and the middle line varies from 1 to $2\frac{1}{2}$ inches, being less when the shoulder is lower in the uterus and the head is in the



pelvis and greater when it is situated higher. It is due to the uterine cavity, which is broader above and narrower below, thus compressing the shoulders when lying in the lower part, bringing the anterior shoulder nearer the middle line. In the posterior positions, the distance between the anterior shoulder and the central line is always greater, being three inches and above.

In occipito-posterior positions the anterior shoulder gives valuable information during labour. It continues to descend almost in a line, though, as it descends into the lower narrow part of the uterus, it is slightly pushed inward, yet it is but felt outside the median region. It is only when the head begins to rotate after it has well descended on the pelvic floor in the third position that the anterior shoulder gets into the median region; so when the shoulder is thus found to come nearer the middle line, it is a favourable sign indicating that the labour will most probably end normally. On the other hand, even after the rupture of the membranes, though the second stage has lasted for some time, the anterior shoulder has remained outside the para-rectal line, it is a sure indication that the internal rotation of the head has not begun.

The behaviour of the anterior shoulder during labour is of practical importance. Even in anterior positions, it continues to be in the median region, either left or right according to position, until the head has descended on the pelvic floor. It begins to turn inwards as soon as the head commences to undergo internal rotation. This can be seen distinctly on referring to the radiograms given. In the second figure, the occiput has undergone complete internal rotation and is emerging under the pubic arch; whereas the anterior shoulder has crossed the middle line and gone over to the right side.

In carrying on the observations I was greatly helped by the Resident Medical Officers, Sir N. M. Wadia Maternity Hospital, Dr. Patharkar, M.D., M.S., and Dr. Aroskar, M.D., to whom I am much indebted.

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ANATOMO-PATHOLOGY OF MALARIA

Ever since the discovery of the malaria parasite by Laveran in 1880 and the substantiation of the mosquito-malaria theory by Manson, Ross, Mac Callum and others, quite a large volume of work has been done on the entomological, epidemiological, endemiological and pathological aspects of the disease but some of the problems in the latter subjects still remain unsolved. For example, as regards the pathology of malaria we are not yet able to explain all the manifestations of pernicious symptoms. As a result various theories have been put forward, such as plugging of the capillaries of important internal organs by adult parasites either due to sporulation, agglutination or distension of the endothelial lining of capillaries with pigment; the production of a " hemoclasic " or anaphylactic shock brought on by the sudden liberation of a large quantity of malarial toxin and so on. The very fact that several theories have been put forward to explain these phenomena shows that we are yet far from a correct interpretation.

The most important single disease which carries away thousands of lives every year in India is malaria. Although quite a large amount of work has been carried out in India on other aspects of the disease, a detailed histo-pathological study of the disease has not received the measure of attention that it deserves from scientific investigators. It is for this reason that we are glad to publish, in this issue, a paper on the subject from Drs. Tirumurti and Rao. Although the number of cases studied is small, yet it represents painstaking work of the right type. The authors have noted two noteworthy facts which have not previously been recorded by previous workers, viz. (1) a hyperplasia of lymphoid tissue and (2) capillary constriction in viscera bringing about an ischæmia of the affected areas. The authors think that " in acute malaria the liver is the principal sieve for the parasites and the spleen the chief store for the pigment " and that vasomotor disturbances play an important part in the pathogenesis of visceral manifestations, particularly in sensitised individuals. It is quite possible that many workers may not agree with all the hypotheses that they have deducted from their findings. It is, therefore, highly desirable that other workers should carry out similar work on different types of cases, so that the accumulated work may elucidate the present hazy position of the subject.

CASE NOTE

A CASE OF RETENTION OF URINE DUE TO ENLARGED PROSTATE

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Sivagnana Thevar, a sturdy looking old man of 60 years, married thrice, was admitted into the Headquarters Hospital, Palamcottah, on 11-3-1935 with dribbling of urine and blood since the previous 3 days. Patient complained of difficulty in micturition, small thin stream or drops for over three months before. His blood pressure was 125 m.m./85 m.m. After preparation, patient was examined rectally. There was a large 'enlarged' prostate. With a few whiffs of chloroform catheter was passed,—urine was found septic. Suprapubic cystotomy was done, bladder was well irrigated, patient advised to be radically operated after the parts become clean. Bladder-wash was done regularly, but he was not amenable to discipline. Persistently the bladder was washed regularly for about a week, and he improved much, but refusing to be operated radically he went away after ten days' stay. (on 20-3-1935).

(2) Admitted again on 7-9-1935 with dribbling urine through the supra-public fistulous opening. Bladder was irrigated through a catheter first with boric lotion and also Dettol solution 2 dr. to a pint. He would not retain the catheter for more than 2 days. So bladder was cleaned through a tube through the enlarged fistulous opening. Anti-streptococcus serum was given twice. The patient was improving, passing clear urine through fistulous opening and not through urethra. But the patient went away being persuaded by his son to go home on 26-9-1935—(19 days in hospital).

(3) For the third time, he came and was admitted on 13-11-1935. The patient was prepared, and was radially operated under spinal anæsthesia (percain).

The following are the notes of the Operation :—

20-11-1935—Prostatectomy suprapubic, "Spinal" percain (1 in 1500) acted well. Enucleation difficult owing to strong adhesions particularly on posterior aspect; what looks like complete gland, size of a big lime, shelled out. Some bleeding (average). Hot plugging.

This operation has been done after supra-pubic cystotomy, and drainage for some months—cystotomy done on 13-3-1935 by me, and the radical operation 8 months later. The patient is of a gigantic build and a very strong man of active habits.

He is rather proud of his sexuality and potency.

22-11-1935—The patient is doing well.

The enlarged prostate removed from him :— $2\frac{1}{2}'' \times 2\frac{1}{4}'' \times 2\frac{1}{4}$: weight 1 oz. 3 dr. (size of big lime).

After-treatment :—The gauze plug which was put in on the day of operation (20-11-35) for stopping bleeding, was removed on the 2nd day, and the rubber drain on the 4th day. The supra-pubic wound and bladder was irrigated both through urethra and through the supra-pubic wound 4 times daily for 5 days; thrice daily for four days; twice daily for 7 days and once daily thereafter. Catheter was not left in, but was used for irrigation only. Eusol lotion was used for 10 days and afterwards 2 ozs. to the pint of lotio permanganate only. He was put on glucose and saline (10% glucose) by mouth and also barley water. There was some rise of temperature from 20th to 27th November from 100° to 102°F.

I. V. Iodine given 3rd day; Anti-streptococcus serum I. M., 3 c.c. on the 4th day, 6 c.c. 5th day and 2 subsequent days in succession 3 c.c. $\frac{1}{2}$ c.c. adrenaline was added to prevent any serum reaction on the 2nd and 3rd day only. Urotropine 10 gr. and acid sodii phosphate 15 gr. with Tr. hyoscyamus 20 m. in 1 oz. water thrice daily. Within a week he wanted a little rice, milk and bread; he was also given some soup. Recovery commenced uneventfully.

17-12-1935—He is practically all right now, passing urine naturally, with a small wound yet to heal above the pubis.*

*Read at a monthly meeting of the Tinnevelly District Medical Association held at Koilpatti on December 17, 1935.

MODERN THERAPY IN GENERAL PRACTICE

THE TREATMENT OF ULCERATIVE COLITIS

ARTHUR F. HURST, M.A., M.D., F.R.C.P.

The most important factors in the successful treatment of ulcerative colitis are patience and perseverance on the part of both the doctor and the patient. Even in early cases several weeks of strict treatment are generally required; in chronic and late cases the patient may have to be in bed under continuous supervision for a year or more. It is natural that the patient and the doctor should wish to celebrate any improvement by relaxing the rigour of treatment. But it is essential to control by endoscopy any apparent improvement, as the disappearance of symptoms may precede the disappearance of the last trace of ulceration and inflammation by weeks. Relapse is almost certain to occur unless treatment is continued until all signs of inflammation have disappeared.

Rest

The patient should be kept completely at rest in bed so long as there is any pyrexia and so long as more than two or three stools are passed in twenty-four hours. After that he may be allowed to get up for a warm bath and to lie on a couch during the day, but he must not take any more exercise than is involved in walking from one room to another until recovery is complete.

Diet

The small intestines are rarely involved in ulcerative colitis. It is therefore quite unnecessary to make any restriction in diet beyond the avoidance of pips and skins of fruit and fibres of vegetables. This is a matter of extreme importance, as the disease is likely to last for a long period, and too limited a diet not only results in loss of weight and strength, but the food taken may contain insufficient iron to compensate for the loss of blood in the stools, and microcytic anæmia then results. The anæmia and malnutrition, and particularly any deficiency in vitamins, aggravate the colitis and may lead to serious cutaneous and ocular complications, all of which respond rapidly to a change to a more liberal diet. Patients with ulcerative colitis often have quite a good appetite and there is no reason for limiting their allowance of meat and other foods containing no indigestible residue. Fruit is best given in the form of strained juice and "fool," and green vegetables as purees.

Local Treatment

Except in the most acute stages of ulcertaive colitis local treatment is often useful. The fluid should be run in through a soft catheter introduced only just beyond the anal sphincter. The quantity should depend upon the extent of the disease as shown by X-Ray examination. If the whole colon is involved a pint and a half is needed; when introduced slowly at a pressure not exceeding eighteen inches of water, it reaches the cæcum without difficulty and is almost as effective as if given through an appendicular or cæcal stoma. If only the pelvic colon and rectum are involved half or three-quarters of a pint are sufficient, and the patient should remain in a semi-sitting position so that the fluid cannot run into the more proximal part of the colon. The most useful solution is tannic acid, the strength being gradually increased from half to two grains to the ounce; it should be retained, if possible, for half an hour. When the disease is localized to the rectum, the most effective treatment is to blow bismuth subgallate powder on to the mucous membrane through a proctoscope.

Drugs

Codeine—When the diarrhœa is severe the patient is likely to become exhausted for want of sleep. A dose of codeine sufficient to keep the bowels from acting more than once in the night should be given at 10 p.m.

Belladonna—In most cases the muscular coat of the colon is extremely irritable, and healing is much retarded by its continuous activity. Tincture of Belladonna should therefore be given every six or four hours, the dose being gradually increased from five

minims to the maximum the patient can take without getting his mouth uncomfortably dry.

Charcoal—Pain is not a common complaint in ulcerative colitis. Colicky pains may, however, occur owing to distension with gas, especially shortly before the bowels act. This can always be relieved by giving a tablespoonful of charcoal two or three times a day.

Iron—Most patients with ulcerative colitis are more or less anæmic; thirty grains of iron and ammonium citrate should be given three times a day till the hæmoglobin is at least 80 per cent. If the hæmoglobin percentage is less than 70 per cent, transfusion not only improves the patient's general condition, but often greatly hastens the healing of the ulcers.

Serum and Vaccine Therapy—Believing that the majority of cases of ulcerative colitis are results of infection with a dysenteric organism (Guy's Hospital Reports, 1935, lxxxv, 317) I have used polyvalent anti-dysenteric serum in treatment for the last fifteen years. In my first case the result was little short of miraculous.

A young man, aged 21, had been ill for over a year with severe diarrhœa and the passage of much blood and pus. When I first saw him on October 1st, 1920, he was very emaciated. having lost over three stone in weight during the previous weeks; he had a high temperature, was very anæmic, and had a sacral bed-sore. Sigmoidoscopy showed that the mucous membrane was severely ulcerated. An appendicostomy was performed the next day, but he rapidly became worse and appeared to be moribund when on October 18th he was given his first intravenous injection of polyvalent anti-dysenteric serum. By October 21st, blood had already disappeared from the stools, which rapidly became more solid; on the 23rd the sigmoidoscope showed that the mucous membrane was entirely free from ulcers. On November 1st the mucous membrane was perfectly normal. Except for occasional slight recurrences, rarely lasting for more than a few days, he has remained well ever since, and was very fit when I last saw him in July, 1935.

After preliminary desensitization 20, 40, 60, 80, and 100 c.cm. of serum are injected intravenously on consecutive days; sometimes a few additional doses of 100 c.cm. are given. The treatment can only be undertaken safely in a hospital or nursing home, where the patient is under continuous supervision, owing to the possibility of delayed anaphylaxis. If the patient is treated at home 10 c.cm. of serum should be injected intramuscularly daily for about ten days; good results are sometimes obtained, though less frequently than with intravenous injections.

The great disadvantage of treatment with serum is the possibility of a dangerous reaction. An anaphylactic reaction may occur during the injection of serum, but it is occasionally delayed by several hours. Prompt treatment with adrenaline, one minim of which should be injected every half minute, after an initial injection of three minims, until complete recovery takes place, is almost always effective. Rapid recovery is most likely in the early stages, but it is occasionally very striking even in the long-standing cases. More frequently the serum produces a certain degree of improvement, with the result that other treatment leads to recovery more rapidly than it otherwise would have done. In a small number of cases, especially the very chronic ones, the serum has no effect. Though the improvement which follows serum treatment is probably, in part, due to protein shock, especially in cases in which there is much general reaction, yet in many cases it is probably in part or entirely specific. Thus in one of my cases the serum was very effective, although no improvement had followed a series of injections of the same quantities of ordinary horse serum.

Jerwood (1921), Ryle (1928), Bindon Brew (1930), and many others in England, and Bell (1924) in Melbourne have obtained very satisfactory results with anti-dysenteric serum. Crohn of New York has several times reported on the good results he has obtained with anti-dysenteric serum, which he has now used for several years as the routine treatment for ulcerative colitis. The following is an abstract from a recent report on a follow-up of seventy-five cases reported by him with Rosenak (Amer. Journ. Di. Dis., 1935, ii. 343). "Since 1921, following the suggestion of Arthur Hurst of London, we have employed the intravenous injection of polyvalent anti-dysenteric serum; this, regardless of whether dysentery organisms were isolated or agglutins were or were not present in the patient's blood..... In order to determine whether the effect of this serum was a specific or a non-specific one, we attempted, in a number of cases, to duplicate the results by the intravenous injection of typhoid vaccine..... Other methods of treatment were tried at various times in

the course of years, including autogenous vaccines of fæcal organisms, Bargen's serum and vaccine, transfusions, etc., some with good results, many of them without any noticeable effect... It soon became obvious that any protein agent which would produce a protein shock and a febrile reaction could bring about a beneficial change in the chronic course of this disease. Those using Bargen's serum, and Bargen himself, have observed that the best results were seen where the serum created severe protein as well as a specific antitoxic agent... Our personal experience convinced us of the superiority of the use of polyvalent anti-dysenteric serum. Whether the disease is a mild endemic dysentery or not, splendid results followed the method of specific serum treatment."

I have never seen the slightest benefit follow any form of vaccination, and in some cases the local condition has been definitely aggravated. Several American physicians have told me that they have been quite unable to confirm Bargen's enthusiastic reports about treatment with vaccine or serum (so-called " ulcerative colitis serum ") produced from his organism, which most bacteriologists both in England and in America regard as a non-pathogenic enterococcus.

After-treatment

The danger of recurrence is much reduced if treatment is continued until the sigmoidoscope shows no trace of inflammation, even if symptoms have already disappeared for some weeks. Associated conditions, such as oral and pharyngeal infections, and anal complications must be treated, as a relapse may follow an acute sore throat, or the development of a peri-anal abscess or a fistula-in-ano. The patient should keep permanently on a roughage-free diet and take sufficient paraffin to keep his stools soft.

Surgical Treatment

Forty patients with ulcerative colitis were admitted into New Lodge Clinic between 1921 and 1934. None died in the Clinic, although in the large majority of cases the disease was of a severe character and only three died after leaving it, in each case as a direct sequel of operation—appendicostomy, colostomy, and colectomy the last in direct opposition to my advice as the case was an acute one and it should have been obvious that a one stage operation would prove fatal. Neither appendicostomy nor cæcostomy was performed on any of the patients whilst in the Clinic, though one attributed his final recovery to an appendicostomy performed after he left. In four the operation had been performed before coming to the Clinic, but in each case without any benefit. As the whole of the colon can be satisfactorily washed out with a pint and a half of fluid introduced per anum, and as in many cases only the distal half of the colon is involved, it is clear that appendicostomy or cæcostomy is rarely indicated.

A short circuiting operation has been performed with success in three of my patients (including one of the Clinic series) for fibrous stricture. When, in very chronic cases, a large part of the colon has become disorganized, with the formation of fibrous strictures and multiple polypi, all potentially malignant, the ideal operation is, I believe, a temporary ileostomy followed by colectomy. The end of the ileum is cut across; the proximal end is brought to the surface in order to divert the fæces from the colon, and the distal end can either be closed or brought to the surface so that the colon can be washed with normal saline solution introduced by a tube passing through the ileo-cæcal sphincter. After several weeks, when all active inflammation has disappeared from the colon, colectomy is performed; if endoscopy shows that there is no stricture within nine inches of the anus the lower part should be left so that the ileum can be anastomosed with it at a later stage. I have had the operation performed five times with one death (Dunhill, Hughes, Ogilvie, Gaymer-Jones); in only one of the four was it necessary to remove the rectum and to leave a permanent ileostomy. Any polypi in the rectum and the remaining part of the pelvic colon are destroyed by diathermy cautery. The ultimate result in each case was completely satisfactory—*B. M. J.*, February 15, 1936, p. 320).

CURRENT MEDICAL LITERATURE

MEDICINE

Serum Treatment of Typhoid Fever

FELIX and MCSWEENY (*Lancet*, 1935, 1: 799) reported the results of treatment of typhoid fever by a new anti-typhoid serum prepared by Felix and the authors give further report of their experiences at a meeting of the fever hospitals group of the Society of Medical Officers of Health on January 31, 1936. Felix has recently found in Bacillus typhosus a third antigenic compound which he calls "Vi"-antigen in addition to 'H' and 'O' antigens. Felix is of opinion that O-antigen is responsible for the toxic symptoms and vi-antigen is associated with virulence and that the serum to be of therapeutic value must contain in sufficient quantity 'O' and 'Vi' antibodies. This new serum has been tried in Palestine and Egypt and found " definitely encouraging " McSweeney tried in 19 cases in Dublin the same kind of serum but concentrated and of very high O and Vi titres and found it quite efficient specially in combating toxæmia, the period of fever in 10 cases having been definitely shortened. The serum is usually given intramuscularly.

Treatment of Bacterial Meningitis

TRIPOLI (*Jr. Amer. Med. Asson.*, January 18, 1936, p. 171) gives an analysis of 468 cases of bacterial meningitis admitted to the State Charity Hospital of Louisiana during the past ten years. Among them 221 cases were meningococcal meningitis (47%), 111 were pneumococcal meningitis (24%), 51 were tuberculous (11%), the remaining 85 cases included streptococcal, staphylococcal and influenzal infections, mixed infections and purulent meningitis of unknown causation. Many different methods were employed in the treatment of meningococcal meningitis though the serum administration was the basis of all. Simple lumbar drainage was done in 14 patients all of whom died but as the cases were all moribund the results are not the true gauze of the value of the method. In 130 cases were tried repeated administrations of antimeningococcal serum by intravenous, intramuscular and intraspinal routes after withdrawal of " as much spinal fluid as possible;" of these 87 died (mortality rate 67%). The author points out that by these methods of treatment there is no maintenance of normal spinal fluid pressure and no serum of much potency reaches the ventricle. So in the next 54 cases the intracisternal route was utilised alternately with the intraspinal with death in 26 cases (mortality rate 48%). The author then used in 19 cases a modification of the Lyon 'substitution' method of serum therapy by which serum containing phenolphthaleine as an indicator is introduced into the ventricle at the same time as the cerebrospinal fluid is being drained by the lumbar puncture, the process being stopped when serum appears at the lumbar site." Of these 19 cases 8 died (mortality rate 42%), serum being used in these cases also by intravenous and intramuscular routes. In treating 247 cases of meningitis other than meningococcal various methods were used. Simple lumbar drainage was done in 181 with recovery in 1 the organism isolated in the case being Pfeiffer's bacillus. Intraspinal mercurochrome was administered in 7 cases and found out to be not only useless but seemed to have hastened death in 4 cases. For pneumococcal meningitis specific and non-specific sera and vaccines were tried but to no avail; severe reactions sometimes causing in death followed the use of antipneumococcal serum. In 51 cases of tuberculous meningitis there was not a single recovery. The author is of opinion that on the whole the results of treatment in meningitis other than meningococcal were ' almost uniformly bad."

Electrocardiographic Studies During Surgical Anæsthesia

KURTZ, BENNET and SHAPIRO (*Jr. Amer. Med. Asson.*, February 8, 1936, p. 434) report on electrocardiographic studies made on 109 patients during 113 surgical operations done under various anæsthetic agents. Of these 109 patients 74 (69%) had no visible cardiovascular lesion while the remaining 35 patients (31%) showed cardiac abnormalities, definite arteriosclerosis and hypertension. Electrocardiograms were taken as a routine before operation, at frequent intervals during operation, during recovery and ten hours after the operation. The most striking changes

noted during these observations were disturbances in rhythm of which sinus arrhythmia, extrasystole and inversion of P wave were predominant. Complete heart block was found in 2 instances and auricular fibrillation in one. These arrhythmias were more prominent in abnormal than in normal hearts and the incidence was lowest with procaine anæsthesia and highest with chloroform. Only 21% of the cases failed to show some type of disturbance. There was found no constant and specific relationship between this incidence of arrhythmias and the depth of anæsthesia or the steps in the surgical procedure. Certain variations were found in PR interval, amplitude of QRS complexes and T waves but they were of a transient nature. Electrocardiographic tracing taken 10 hours after operation showed in large percentage of cases some variations from the control tracings but the authors hold that further work will be required to pronounce any definite opinion on the significance of such changes.

Some Observations on Peptic Ulcer

Davies (*Lancet*, March 7, 1936, p. 526 and March 14, p. 595) in his Bradshaw lecture for 1935 gives a clinical study of 377 cases of chronic peptic ulcer and observes that though the ætiology of the disease is obscure experimental surgery has shown that a chronic ulcer can be readily produced and that active gastric juice is by itself sufficient to produce the lesion in the intestine. In this study he attempted to show that a benign ulcer forms and heals up quickly and hypersecretion and hyperchlorhydria do diminish and are often replaced by a normal gastric secretion. He has shown that physical rest is not absolutely essential for the healing of an ulcer crater and that by ambulatory treatment symptoms disappear extremely quickly and ulcers soon heal up. The author draws particular attention of the tremendous influence of the nervous factor in the recurrence and in initiating symptoms of peptic ulcer and holds that efficient treatment must, therefore, be not only highly individual but also wide enough to encompass the whole man and his environment and as much attention must be taken of his anxieties as his diet.

Treatment of Coronary Artery Disease by Intravenous Injections of Hypertonic Saline Solution

Feinberg (*Jr. of Amer. Med. Sci.*, March, 1936, p. 410) reports six cases of severe and intractable angina pectoris due to coronary artery disease treated successfully with repeated intravenous injections of hypertonic saline over prolonged periods. These cases were refractory to all other methods of treatment and did not show any sign of spontaneous improvement when kept under long periods of observations. The saline treatment produced definite and continuous improvement in their clinical condition and the author holds that this is due probably to a more rapid development of collateral circulation of the heart wall.

Mumps Orchitis

Stengel (*Jr. of Amer. Med. Sci.*, March, 1936, p. 340) studied in detail the disease from various aspects and makes the following observations:—(1) Mumps is caused by a virus. (2) Orchitis usually follows parotitis, is more often unilateral than bilateral and is probably a parenchymatous sclerosis. (3) Orchitis is most frequent at the age of puberty and its incidence in a large number of cases is about 18·2%. (4) Orchitis is characterised by rise in temperature, swelling, tenderness and pain in the testicle, subsidence of fever by lysis and later variability of the size of the gland. (5) Its complications may be (a) meningitis and other central nervous system involvement, (b) atrophy of the testis occurring in 40 to 60% of the cases, (c) impotence and sterility. (6) The treatment is purely symptomatic and the use of convalescent serum or surgical incision may give good rasults.

Pneumococcus Type III Pneumonia

Cecil, Plumer, and McCall (*Jr. Amer. Med. Sci.* March, 1936, p. 305) studied 500 cases of pneumococcus Type III pneumonia and give in the following lines the salient points observed by them.

(1) Pneumococcus Type III ranks third as an exciting agent in lobar pneumonia, causing 11·8% of all pneumococcal pneumonia.

(2) The incidence of this type of pneumonia increases with age and it is relatively commoner in women than in men and occurs more in individuals who are victims of some chronic systemic disease. (the incidence rate in women being 18·2% as compared with 11·6% for men).

(3) The death-rate in this type of pneumonia was 42·2% and was influenced by such factors as age, and systemic disease as evidenced from the follow-

ing percentages—patients under forty having death rate of 20%, the patients over sixty 65·%; patients without systemic disease 32·1% and patients with systemic disease 53%.

(4) There is no satisfactory serum therapy for this type of pneumonia.

Heart Failure in Hypertension

AVERBUCK (*Amer. Heart Jr.*, January, 1936, p. 99) in investigating the cause of heart failure in hypertension studied hearts of 40 hypertensive patients who died of myocardial insufficiency with a control group of 30 hearts from hypertensive patients who died of cerebral accidents, renal insufficiency or incidental diseases. Eighty-five per cent. of the patients in the cardiac group showed definite involvement of the coronary artery (sclerosis or thrombosis) while only 10% of the patients in the control group had coronary artery disease. The myocardial changes in both groups were in proportion to the extent and degree of involvement of the coronary artery. In 15% of the cardiac group there was not sufficient change either in the coronary artery or in the myocardium to account for the heart failures; 3 of them showed marked pulmonary complications while the remaining 3 did not show anything.

Neuritis in Pneumonia.

GUILLAME (*These de Paris*, 1935, No. 917) records 9 cases in patients aged from 24 to 56 and writes that paralyses in pneumonia occur either early or late in the course of the disease. Those occurring early during the active phase of the disease are generally of hemiplegic type. Those occuring late when the patients are in convalescence involve either a group of muscles supplied by a single nerve or the whole of the extremity either upper or lower. The latter type generally has an insidious onset, a slow course and is less serious as recovery is usual. Pathogenesis is obscure though particular strains of pneumococcus may have a marked predilection for the peripheral nervous system. Most of the author's cases gave history of alcoholism which must have made at least the nervous tissue more vulnerable to pneumococcal toxin.

Histamine Treatment of Recurrent Urticaria

FIESSINGER and GAJDOS (*Presse Med.* November, 1935, p. 1913) report six cases of recurrent urticaria treated by histamine ionization. A compress wet with 1 in 10,000 watery solution of histamine hydrochloride was put over the epigastrium and covered with an aluminium plate which was then connected to the positive pole of a battery and 6 to 10 mA were passed for 5 to 10 minutes, the negative pole being held in patient's hands. As many as 12 treatments on alternative days were found necessary. All the six cases were cured but the authors do not claim that the treatment will be invariably successful in every case. Pruritus from other causes were not affected by this treatment. There is no contraindication for this therapy and it has no effect on gastric acidity.

Clinical Experience with Protamine Insulinate

ROOT, WHITE, MARBLE, and STATZ (*Jour. Amer. Med. Asson.*, January 18, 1936, p. 180) give preliminary observations in fifteen cases and confirm the observations of Hogedorn and his associates regarding protamine insulinate that has been developed in their laboratories. This substance being relatively insoluble tends to be absorbed slowly and over relatively longer time than ordinary insulin; the blood-sugar lowering effect lasts about twice as long. Because of this wide fluctuations in blood-sugar levels are less apt to occur and hypoglycæmic reactions can be largely avoided. The authors hold that further work is necessary to determine when, how and for which patients protamine insulinate can be used.

SURGERY

Diagnosis of Spinal Injuries

HALL and HALDEMAN (*Surgery, Gynæcology and Obstetrics*, December, 1935, p. 827) describe a useful diagnostic sign in injuries of the vertebral column. The patient lies flat on his back without pillows and the examiner puts one hand on his sternum exerting a slight pressure to prevent any flexion at the lumbar or dorsal regions of the spine while he slips in his other hand under the occiput and with it the head of the patient is slowly bent upon the neck and both head and neck are flexed on the sternum. This procedure stretches the posterior spinous ligaments and produces a progressive pull which ultimately reaches the injured vertebra and the patient localizes the pain with great accuracy. A negative test within a month of an injury to the back is conclusive

evidence of the absence of a vertebral fracture. The test is helpful also in medico-legal cases because it does not attract the patient's attention to the lesion and he is not aware of the area that is being tested.

A Pathognomic Sign for Chronic Appendicitis

Ruhbaum and Siegmund (*Deutsche med. Wschi.* No. 46, 1935) write that the complaints of patients with chronic appendicitis really change so much and are so various that the diagnosis can hardly be made from them alone. The authors found a new and very reliable sign of chronic appendicitis. Small doses of castor oil produces in unclear cases focal reaction in the shape of increased sensitiveness to pressure over McBurney's point and a slight temperature. A necessary requirement is that the temperature should be found normal when taken 3 times a day for 3—4 days before the test. Then ½—2 tablespoonfuls of castor oil are given in the morning and temperature (axillary) recorded every 2 hours. If chronic appendicitis is present, on the test day and on this one day, there is a rise in temperature of 1°F and sensitiveness to pressure develops over McBurney's point or increases if it was already present. If the test does not help the patient is asked to take an intestinal bath (enterocleaner) in the morning of one of the days following, which will certainly show the same focal reactions. The authors with the help of these two tests diagnosed appendicitis in 33 out of 35 unclear cases and the diagnosis was proved by operation, the other two patients refusing operation. They could not determine for want of cases whether this method is useful for women in differentiating gynæcological conditions.

Cardiac Failure During Anæsthesia

Brehmer (*South African Medical Journal* XI., 1935) writes that in case of total cardiac failure there is no time for any but one method to restore the heart's action and that is strong rhythmic pressure on the ventricles by means of two fingers of the right hand passed through a rapidly made incision in the upper abdomen between the liver and the diaphragm. The two fingers squeeze the heart against the thoracic wall and if this is successful heart begins to pulsate but it may not continue to do so regularly at once when squeezing is resumed until it beats regularly. At this stage artificial respiration and oxygen become effective and both must be used till the patient breathes properly. This method, the author writes, should not be the last but the first procedure adopted when the heart has been found to have stopped beating. Only 3 to 6 minutes are available for re-establishing the circulation. If there is a longer delay the heart may still resume its beat but the patient will probably remain comatose and die within 5 to 48 hours.

Aspiration for Mammary Abscess

Battle and Bailey (*Br. Jr. of Surg.*, January, 1936, p. 640) report very successful results with aspiration in cases of breast abscesses which are not very large and not of diffuse cellulitic type with poor localisation and severe constitutional symptoms. The authors write that the results obtained by this method compare favourably with those of incision. The breast surface is cleansed with ether and a point with definite fluctuation or, if it is absent, the point of maximum tenderness is selected and 2% solution of novocaine is injected through the tissues down to the abscess cavity. A 25 c.c. syringe with a wide-bore needle is inserted, pus is aspirated and equal quantity of Dakin's solution (diluted half and half with water) is injected. The process is repeated in 24 hours if the pain returns, if tenderness persists, and if temperature does not fall satisfactorily. Repeated aspirations are necessary in most cases and when aspiration fails open operation is resorted to. The irrigating fluid used by the authors was first " bouilons vaccine " and was soon replaced by Dakin's solution which is more cheap, easily available and equally effective. Weaning of the baby, extra-nourishment of the mother, ultraviolet ray proved useful in some severe cases.

The Treatment of Otosclerotic and Similar Types of Deafness by Local Application of Thyroxin

Gray (*Jr. Laryngol and Otol.*, 50, 1935, p. 729) writes that by intratympanic injection of thyroxin hearing can be improved and tinnitus relieved in a large proportion of early cases of otosclerosis and so called dry middle-ear catarrh. The treatment is absolutely painless and does not interfere with the patient's activities. The author writes that otosclerosis is caused by deficient supply of blood to the organ of hearing owing to gradual failure of vasomotor responses and thyroxin applied locally produces an active congestion without any inflam-

matory reaction which continues for a long period. Improvement when it occurs lasts in some cases for several weeks and it has, not yet been determined how often the treatment must be repeated.

Surgical Aspects of the Treatment of Carcinoma of the Tongue

Livingston and Libber (*Amer. Jr. Surg.*, 1935, 30, p. 234) emphasize the importance, in control of cancer of the tongue, of dealing adequately with pre-cancerous lesions. Leukoplakia alone forms 35% of buccal cancers and leukoplakia before the advent of cancer is curable. About 50 to 75% of buccal malignancies could have been prevented. The authors then present in detail the technique of dealing with pre-cancerous lesions of the tongue. They also advise that repeated biopsies should be done if the laboratory report does not agree with the clinical picture. They also emphasize the value of surgery as a supplementary measure to irradiation in the treatment of lingual neoplasm and describe in detail the surgical procedure for dealing with tongue lesion.

Use of Gonadotropic Substance in Undescended Testis

Spence and Scowen (*Lancet*, December 14, 1935, p. 1335) treated 33 patients aged 4 to 26 years having imperfected migrated testes with gonadotropic substance from pregnancy urine given in doses of 500 rat units intramuscularly twice a week. Both testes came down into the scrotum in 6 of the bilateral cases and one testis in 4, while in 2 there had not been any descent. In 11 of the 19 unilateral cases the testis descended and in two cases the testis came down from high up in the neck of the scrotum to its bottom. These successful results were obtained within periods ranging from 2 weeks to fourteen and one-half months. The follow-up study of 11 cases up to 11 months showed that in 9 of them the testis remained in the scrotum.

OBSTETRICS AND GYNÆCOLOGY

The Merits and Demerits of Oxytocic Drugs in the Postpartum Period

Moir (*Proc. Roy. Soc. Med.*, Vol. 28, 1935, p. 1654) writes that oxytocic drugs are given in the puerperal period for three reasons—(1) to promote involution of the uterus, (2) to prevent occurrence of uterine hæmorrhage, and (3) to check uterine hæmorrhage which has already begun. The involution of the uterus being an active and vital process and not merely a disuse atrophy is not helped by spasm and contraction; moreover the spasm compresses the uterine sinuses and prevents the removal of the katobolic products so necessary to bring about this postpartum uterine changes. The author doubts if involution is aided by drugs. The author then discusses and compares the clinical value of the various ergot alkaloids and also pituitary extract especially in the third stage hæmorrhage and gives out that ergometrine is superior in all respects.

Rigors in Puerperal Sepsis

Teverousky (*Exper. Med. Ukrainia.*, No. 6, 1935, p. 69) discusses the importance of single and repeated rigors in puerperal sepsis from standpoints of diagnosis and surgical treatment (ligature of veins) with a view to the localization of the infection. In 85 cases in which rigors commenced before the emptying of the uterus there were 68 of abortion and 16 of induced labor and premature birth. In the abortion cases the rigors ceased after emptying of the uterus in 56 cases and all these patients recovered. In 12 remaining cases rigors continued after evacuation of the uterus and 3 patients died. In 16 cases of induced and premature labor the rigors ceased in 11 immediately after emptying of the uterus and all the patients recovered. In the remaining cases the rigors persisted after the emptying of the uterus and one patient died following surgical intervention. The author concludes that rigors before the emptying of the uterus are due to the mechanical effect of bacterial invasion of the blood-stream due to uterine contraction; the prognosis therefore is not unfavourable. If the rigors persist after the emptying of the uterus the prognosis becomes more serious as the rigors occur more frequently. (Summary: Current Medical Literature, *B.M.J.*, February 15, 1936, p. 29).

Endocrine Forms of Dysmenorrhœa

Essenson (*Med. Record*, January 1, 1936, p.11) gives 5 case histories in support of his contention that there are definite cases of dysmenorrhœa which are not of the mechanical, obstructive, inflammatory or pelvic types but of distinct endocrine

form due to the disturbance in function of some endocrine organs. The proper treatment consists of the administration of follicular hormones, hormones of anterior pituitary and ovarian hormone with proper dealing of the associated conditions, viz. severe constipation, anæmia, psychic affections, etc.

Treatment of Metrorrhagia

Avella (*La Gynecol.*, December, 1935, p. 729) reports 18 cases of metrorrhagia treated successfully by diathermy applications to the pituitary body (small doses of 80 mm. with electrodes on the brow and neck). In a few instances similar applications were made to the thyroid. The success of this treatment is due to a regulation of the influence of pituitary hormone on the ovarian internal secretions. Stimulation of the uterine muscle, constriction of the utero-ovarian vessels and increase in coagulability of the blood are also the effects of the treatment by diathermy. Diminution in the size of the uterus is an objective evidence noted after the treatment by the said method and is helpful in the diagnosis of uterine congestion or myoma from ovarian cyst.

Congo Red Injections with Gynæcological Hæmorrhages

Nikolajew and Gurewitsch (*Ztrlbl. f. Gyn.*, 45, 1935) write that congo red gives the best results with genital hæmorrhages from inflammatory processes adnexitis, peri and parametritis) and it fails in endocrine forms of hæmorrhages or hæmorrhage with the presence of fœtal remains. 10 to 12 c.c. of 1% aqueous congo red solution is injected intravenously once or twice. The authors treated 36 women with hæmorrhages with prompt relief in 28 and definite failure in 8 cases in which there were cases of extra uterine pregnancies and hormonal hæmorrhages in young person which later on reacted well to folliculin treatment. From their experience and experimental evidences the authors conclude that congo red facilitates the coagulation of the blood by its influence on reticulo-endothelial system

PATHOLOGY AND BACTERIOLOGY

The Ætiology of Blackwater Fever

Krishnan and Pai (*I. M. G.* March, 1936, p. 121-27) review the literature and discuss in detail the theories of blackwater fever and summarize in the following lines the present position of the ætiology of the said disease.—

" Blackwater fever is not an independent disease but a minifestation of malaria. In its causation probably a special 'biological strain' of the malarial parasite is concerned. This strain is important not by virtue of its toxinogenic property but rather on account of its distinct biochemical activity. The peculiar mode of attack of the parasite on the host, for purposes of obtaining its food requirements, probably leads indirectly to the production of hæmolysis and hæmoglobinuria. This assumption recognizes the prime importance of the host factor not only in inducing this 'biological' variation in the parasite but also in producing the predisposition to hæmolysis and hæmoglobinuria. The two most important predisposing factors are a damaged reticulo-endothelial system and a diminution in free cholesterol involving both the red cells and the plasma, the latter determining the extent of hæmolysis and the former the degree of hæmoglobinuria. The sudden severe intravascular hæmolysis is explained not merely on the basis of physical alterations but rather by the presence of a hæmolysin. It is suggested that this hæmolysis is the end result of a damaged liver and alterations in metabolism of both carbohydrates and fats, and that possibly it is of the nature of an unsaturated fatty acid or a lyso-lecithin."

Vital Staining of Malarial Parasites—A Preliminary Note

Syndenstricker and Vryonis (*Jr. Lab and Clin. Med.* July, 1935, pp. 1094-96) write that for the study of malarial parasites vital staining offers certain advantages over other mehods usually adopted. A saturated solution of brilliant cresyl blue in sterile normal saline gave them very satisfactory results. A tiny drop of this solution is put on a slide and a cover glass on which a drop of blood has been placed is dropped on to the stain. The preparation becomes ready for examination as the parasites are stained almost immediately. The parasites remain alive for over 2 hours on the warm stage and can be studied in different stages, viz. merozoites moving over the surface of the red cells, their actual penetration into the cell substance, the formation of extraparasitic vacuoles etc. The authors hold that the method will

be useful for the study of the relation of the parasites to the reticulocytes and of the action of drug.

Leucocytic Variations in Radium Workers

Goodfellow (*British Journal of Radiology*, December, 1935, p. 752) has systemetically examined the blood at the intervals of 2 to 4 weeks on 32 workers in radium and X-rays, the period of observations ranging from 6 months to 3 years according to the duration of each patient's work in this environment. The author has found that over-exposure to radiation produces as its earliest sign a definite leucopenia due to a reduction in the number of neutrophiles. It has been observed by the author that susceptibility to radiation varies in different persons. The more sensitive persons show an absolute lymphocytosis with an absolute neutropenia as the first sign of over-exposure, the less sensitive get a lymphocytopenia with a monocytosis under the same conditions. Eosinophilia has often been observed and abnormal or embryonic leucocytes have occasionally been found in some workers. Holidays lasting less than 4 weeks do not seem to be helpful for the over-exposed worker in restoring their leucocytic count to normal.

Blood Counts in Whooping Cough

Beg and Coveney (*Lancet*, November 16, 1935, p 113) estimated the total and differential leucocyte count of 65 cases of whooping cough in children ranging from 3 months to 9 years. The blood count was done at two stages in the disease—on admission and in early convalescence. An absolute leucocytosis was present in every case. Lymphocytosis characterized some 77% of cases and in 35% this change was very marked. Twenty-three per cent. did not show any increase of the lymphocytes. In children under 6 months only 17% showed marked lymphocytosis and 33% did not show any increase. By the 14th day of the whooping stage, the leucocyte count returned to normal, this being equally true whether the initial lymphocytosis had been marked, moderate or mild.

Studies in the Serology of Syphilis

Basu and Chatterjee (*Indian Journal of Med. Res.*, January, 1936, p. 673-83) have summarised the work in connection with the various serological tests for syphilis. They have given side by side the results obtained by examination of 561 sera by two methods of complement fixation (viz. serum dilution method and Harrison's method) after incorporation of the recent improvement as well as two precipitation tests (viz. Meinicke's Clarification Reaction II and Kahn's standard tests). In order of sensitiveness the tests should be placed as follows:—

1. Serum dilution method (complement fixation).
2. Harrison's method (complement fixation).
3. Meinicke's Reaction II (Flocculation).
4. Kahn's standard test (Flocculation).

The authors have raised another important question, viz. the chance of non-syphilitic cases giving positive reactions. They find that the complement fixation tests are ideal from this point of view and have not met a single non-syphilitic case giving definitely positive results with these methods. The other important point raised is the positive cases giving negative results. They confirm the results obtained by other workers that pregnancy and neuro-syphilis might exhibit negative sera. The association of other diseases, e.g. malaria and kala-azar, etc., is discussed and the authors do not believe that these give positive results. The authors write that the last word on the serology of syphilis has got yet to be said. A combination of the methods detect 96·5% of known cases of syphilis; serum dilution method 83%; Harrison's method 70%, MK R. II 70%; Kahn 64%. The authors recommend the use of multiple tests.

PEDIATRICS

Urinary Disorders Occurring in the Neonatal Period

Craig (*Arch. of Disease in Childhood*, October, 1935) gives a very complete resume of a series of sixty-one cases and compares with a series of healthy newborn infants. Over 200 specimens were obtained from healthy infants to determine the normal microscopical findings in the urine.

Pus Cells—Forty-eight cases presented pus cells in each field in numbers varying from 5 to 140. Clumping was noticed in some specimens.

Organisms in the absence of pus cells—Organisms were demonstrated in three cases in the absence of pus cells. All three children were seriously ill and ran high temperatures.

Pyuria with mixed infection was found in seven cases and B. coli were found in all seven. In four

non-hæmolytic streptococci, in one pyocyaneus, in another hæmolytic streptococci and in the seventh case B. coli, non-hæmolytic streptococci, B. proteus and pus.

Uric acid deposits in the absence of pus cells—Fifteen cases had heavy uric acid deposits in the napkin in association with pyuria. In five cases similar deposits were noted in the absence of pus cells in the urine. Culture of the urine in each case gave a profuse growth of B. coli.

Clinical features and their frequency—Fever 80 per cent. Anuria or marked diminution in urinary output 70 per cent. Thirst 70 per cent. Restlessness or irritability 66 per cent. Colour changes 64 per cent. Sweating 59 per cent. Vomiting 51 per cent. Collapse 20 per cent. Oedema 20 per cent. Convulsions 10 per cent. Associated conditions—(1) intestinal irritability 16 per cent; (2) postnatal intracranial distress 16 per cent; (3) minor surface infections 26 per cent.

Treatment—Breast-feeding was employed where the child's condition remained good, and provided there was no sign of collapse and that high fever was not present. Otherwise, cow's milk in various forms was given. Extra fluids and weak tea were given at frequent intervals. Alkalies in the form of sodium or potassium citrate were given: 16 to 20 grains in 24 hours was usually found sufficient to alkalinize the urine, but in some cases as much as 60 to 80 grains was necessary: Attention was paid to bowel function. Where intestinal irritability was a feature, small doses of paraffin preparation were prescribed. Bowel lavage was carried out daily when the motions were fœtid or contained mucus. In severe cases an antiphlogistine poultice was applied to the loins and appeared to have a beneficial effect on kidney excretion. Tepid baths were given when there was maintained hyperpyrexia and small repeated doses of brandy as a stimulant. (*South African Medical Journal*, March 14, 1936, p. 188).

Erythema Annulare Rheumaticum

ABT (*Amer. Jour. Med. Sci.*, December, 1935, p. 824) reports 6 illustrative cases in children aged from 11 to 14. It is a specific exanthem associated with rheumatic endocarditis. They are pale or bluish red semi-circles or rings found on the chests, abdomen, the sides of the thorax and the back. They are rarely seen on the extremities, and never on the face. There is no itching, œdema or hæmorrhage and they disappear without producing desquamation or pigmentation. The appearance of the rash indicates the persistence of the active rheumatic endocarditis or the re-appearance of this disease.

Treatment of Gonorrhœal Vulvo-Vaginitis in Childhood with Ovarian Follicular Hormone

WITHERSPOON (*Amer. Jr. of Dis. of Children*, October, 1935, p. 913-17) writes that he treated 10 patients between the ages of 2 and 10 years with almost daily injection of 1 or 2 c.c., 50 or 100 rat units of amniotin over a period of from 42 to 92 days. The amount of discharge in general lessened with prolongation of treatment but that even was not permanent, several of the patients showing exacerbations. The smear examination (weekly) was almost invariably positive and in no case can it be said that a cure was effected. Moreover this treatment has got many disadvantages, viz. the harmful effect on the immature ovary, continuation of the cervical infection in addition to vaginitis, the unpleasantness of daily hypodermic injection, the occasional unfortunate secondary sexual changes such as enlargement of the breast, vulval hyperemia and hypertrophy and lastly the high cost of this method of treatment. This is perhaps the first unfavourable report dealing with this mode of treatment.

Treatment of Carriers of Rhinopharyngeal Germs

LIBONNE (*La presse medicale*, November, 1935, p. 7929) describes a simple and effective treatment of carriers of rhino-pharyngeal germs. The method consists of dusting the throat and nasal fossæ with powdered chinosol by means of a simple insufflator. The strength of the powder used is 1 gm. of chinosol in 100 grs. of bismuth carb. for the first three days and then 1 gm. of the active substance in 50 gms. of excipient. The insufflations are made twice a day. They cause only slight tickling of the eyes and nose. The results of treatment are extremely satisfactory. It has been experimentally found out that Loffler's bacillus does not grow on coagulated serum containing chinosol in strength of 1 in 5,000.

Frequent False Diagnoses in Pediatrics

VOGT (*Ztschr. r. arztl. Fortbildung*, No. 21, 1935) writes that Selter-Swift-Feer's disease is only

rarely recognised, although the fully developed symptoms are very conclusive: severe attacks of sweating, continuous tachycardia, acrocyanosis, trophic disturbances, affective changes. With scurvy, a traumatic detachment of the epiphysis or a fracture is often erroneously assumed, although the distinctive changes in the gums or hæmaturia determinable microscopically assures the diagnosis with no further trouble. A child of 2—3 years which cannot yet sit, walk, or stand is usually treated for rachitis, whereas the real trouble is feeble-mindedness. A large part of the chidlren sent to sanatoria do not even react to tuberculin tests, and are therefore not tuberculous at all. On the other hand, the practitioner is little acquainted with the morbid picture of epituberculous infiltration, or pneumonia (extensive infiltration often of the entire pulmonary lobe around a tuberculous focus which may persist for more than a year, and then disappear completely). The negative auscultation findings in contrast to the intensive X-ray shadows are characteristic. General health not much affected. Temperature moderately raised. With young children, the breathing sounds over the right pulmonary apex are sharper than left. With deep expirations, in crying, with crooked body position, dulnesses may appear due to the changed conditions of tension, which with deep inspiration, or with straight position disappear at once (it is best to have the child grasped under the arms and held swinging free for examination). The foundations of tuberculosis diagnosis are the tuberculin test, the X-ray findings, and the test for bacilli, possibly from the stomach content, and by culture. With more exact observation of the child naked in a good light, the more pronounced convexity of one side of the thorax, and its insufficient motility may lead to the immediate recognition of a pleural empyema. One should not underestimate the importance of what the mother says as to child's change in disposition in the temper of the sick child, which may precede a meningitis tuberculosa, or a brain tumour (repeated vomiting without apparent disturbance of digestion). Every affection accompanied by fever may begin with vomiting and diarrhœa in an infant. The confusion of a parenteral diarrhœa with an acute disturbance of digestion is easy if it is due to an only slight nasopharyngitis which alone may cause high fever persisting for weeks. If this causes movement of the nostrils in breathing, refusal to nurse, and a forced position of the head in extreme backgrounds behind position, on account of the swelling of the mucous membranes, then there may even be suspicion of meningitis. A retro-pharyngeal abscess with its loud sounds accompanying inspiration and expiration, the disturbance in swallowing, the forced position of the head to the front should not be overlooked. The finding of an aspirated foreign body (X-ray bronchoscopy) may be a surprise to the practitioner. One should inquire above all whether there was a sudden attack of violent coughing, of dyspnœa, possibly already half forgotten, and a long time before the development of the suppurative bronchitis, and without immediate consequences. Pneumonia not infrequently gives the appearance of appendicitis because the children have the habit of localising all unpleasant sensations in the abdomen, and because it may be days before bronchial respiration and dulness develops. Without marked localised tension of the abdominal wall and sensitiveness to pressure, the suspicion of appendicitis had no real foundation. (Summary *Ars. Medici*, March, 1936, p. 126).

NUTRITION AND DIETETICS

Allergy Problems and Vitamin C

Hocwald (*Zentralbl. wn. Med.*, 1935, pp. 769-71) writes that allergic phenomena are associated with an increase of blood fibrinogen and gobulin and the administration of vitamin C is followed by an increase of blood albumin but a decrease of globulin. 18 out of 29 guineapigs sensitized to human serum had two to three injections of Redoxon (ascorbic acid) in 100 mg. doses in their pericardium and failed to show any sign of anaphylactic shock when human serum was re-injected 2 hours later while control animals succumbed. Redoxon was however ineffective in histamine shock which of course does not show the same blood protein variation as found in anaphylactic shock.

Spectrographic Examination of Some Indian Milks

De (*Indian Jr. Med. Res.*, 22, 1935, pp. 499-508) reports the results of his examination of human, cow, goat and buffalo milk spectrographically for mineral elements and vitamin A content. Emission spectra were employed in the detection of elements and the estimation of vitamin A was done by the method of

light waves in the ultra-violet region of the spectrum. The following elements were detected in all milks examined:—Na, Ca, Mg, P, K, Cu, Fe, Al, B, Mn, Pb, Ti, V and Zn. Ba, Co, Ni and Sn were absent from all and the presence of Cr, Lo, Rb, Sr and Ag was doubtful. P was least plentiful in human milk. Ca was most abundant in buffalo milk and least so in human milk. Cu and Fe was maximum in human milk and minimum in the buffalo and cow-milk. Vitamin A estimation was done and the results were similar for all species of milk examined " but no allowance was made for the interdependence of vitamin A and the mineral constituents, nor for season, locality and diet."

Metallic Contamination of Food and Effect of Cooking and Storage of Food Stuffs in Aluminium Vessels

Datta (*Proc. Indian Acad. Sci.*, Bangalore, 2, 1935, pp. 322-332) determined the aluminium content of various Indian food-stuffs before and after cooking in aluminium vessels and after storing in the latter and found out that aluminium goes into solution if it is in contact with fruit and vegetable juices, maximum being when in contact with tamarind solution. This corrosive action is aggravated by the presence of salt. Rats fed on milk-curds stored in glass and aluminium vessels respectively showed no difference in growth, reproduction and general well-being.

Studies on the Healing of Fractures with Special Reference to the Vitamin Content of the Diet

Hertz (*Thesis, Copenhagen*, 1935, p. 366) writes that an instrument was devised by which fractures of the fibula, without open lesions of the tissues, could be inflicted on rats and guineapigs. The histological appearances in the healing process in control animals on normal diets are described in detail. In animals on scorbutic diets the healing of the fracture was greatly checked, the callus formed later, the osteoblastoma developed poorly, the callus contained but little collagen though much lime and was therefore brittle and the final result was pseudoarthrosis. There was little cartilage in the callus.

In rats on diets deficient in the B vitamins the healing of fractures took place normally but, at the same time, the longitudinal growth of the bones was suspended. In rats on diets deficient in vitamin A or in vitamins A and D the growth of the cartilage in the callus was poor but the fracture healed within the normal time. In rachitic rats excessive production of cartilage-like callus occurred. It consisted of non-calcareous osteoid tissue and cartilage, which was converted into osteoid tissue by endochondral ossification; this assimilated only a little lime for which reason it remained pliable at the fracture. Some of the cartilage was converted directly into imcomplete bone tissue by metaplasia. Direct ossification was seen early in rats treated with toxic doses of vitamin D. The cartilage in the callus was again converted by intense degeneration of lime salts into undifferentiated connective tissue, which became bone by direct ossification, but the healing of the fracture was thereby somewhat delayed. (Summary, *Nutrition Abstract and Reviews*, January, 1936, p. 603).

Fœtal Death, Prolonged Gestation and Difficult Parturition in the Rat as a Result of Vitamin A Deficiency

Mason (*Amer. Jr. Anat.*, Vol. 57, 1935, pp. 303-349) writes that rats fed on diets deficient in vitamin A showed abnormalities in pregnancies viz., prolongation of the gestation period, long and difficult labour, death of the mother and the young. Histological examination proved beyond doubt that the fœtal death is due to maternal changes and not to any changes in the fœtal tissue as in vitamin E deficiency. Codliver oil therapy cures this condition in rats if it is begun in time. Many young die for failure in lactation and those who survive lactation get xerophthalmia and become distinct under-weight at weaning. No evidence was available to prove that the condition is due to faulty secretion of ovaries or anterior-pituitary. The author is of opinion that infection plays a definite role in this condition as he found definite signs of infection of the mucous membrane of the genital tract.

NUTRITION AND NATIONAL HEALTH

Three Cantor Lectures on "Nutrition and National Health" were delivered before the Royal Society of Arts on successive Mondays in February by Major-General Sir Robert McCarrison, I.M.S. (Retd.) He devoted his first lecture to explaining the processes of nutrition, in the second he discussed food essentials and their relation to the structure and functions of the body, and in his final lecture he dealt with the prevention of disease and the improvement of physique by attention to diet.

Processes Concerned in Nutrition

Sir Robert McCarrison began by describing the process concerned in the function of nutrition, and the pathological changes brought about in the organs and tissues of the body by faulty food. The root of the whole matter, he said, was the nourishment of the cells of which, in countless millions, the human body was constructed. Man was made up of what he ate. He was, indeed, created out of the earth, and according as the earth provided, by way of plant and animal life, the materials needed by his body, so was that body well, ill, or indifferently made and sustained.

The lecturer defined food as anything which, when taken into the alimentary tract, provided on digestion materials for the nourishment of the body; materials wherewith its cells fashioned themselves each after its kind; materials to sustain their structure and to co-ordinate and control their functions; materials wherewith the tissues and specialized functions elaborated their products; and materials to provide energy for cellular work.

The substances wherewith those purposes were effected were oxygen, water, and the digestion products of proteins, fats, carbohydrates, inorganic elements, and vitamins. Apart from oxygen and water, those at present known to be indispensable to the performance of the body's functions were thirty-six in number. Of these eighteen were amino-acids, derived from the proteins of the food. Eleven were inorganic elements: sodium, potassium, calcium, magnesium, phosphorus, iron, sulphur, copper, manganese, chlorine, and iodine. One was glucose, derived chiefly from carbohydrates; another was linoleic acid, derived from fats, and the remaining five were vitamins.

No single foodstuff contained all these essentials. A properly constituted diet was such a combination of foodstuffs as provided them all in proper quantity and proportion. In addition to proteins, carbohydrates, fats, mineral salts, and vitamins, there were in food blood-forming substances, extractives, flavouring matter, and pigments that had parts of greater or lesser importance to play. The food must also contain a certain amount of innocuous indigestible material, or "roughage," to stimulate intestinal movements. Besides all this, there was something, in the freshness of food, especially vegetable food, which gave it a health-promoting influence. It was impossible for any synthetic food to equal fresh foodstuffs as Nature provided them in health-sustaining qualities.

Food and Digestion

Nutrition was the process, or series of co-ordinated processes, whereby the nourishment of the body was effected and the structural integrity and functional efficiency of every cell maintained. It was the sustenance of the body mechanism which primarily mattered; the fuel, or calories, was merely a question of the energy of the body expended in the maintenance of vital processes, such as respiration, circulation, and secretion and in external, or muscular work. The processes concerned were mastication, deglutition, digestion, absorption, circulation, assimilation, and excretion. The first stage of nutrition was thus effected in and by the alimentary tract; the second in and by the cells composing the body; and the third by the organs of excretory function—skin, lungs, kidneys, and bowels.

He reminded his audience of the tasks which this mechanism had to perform. It split up by digestion the food-stuffs in such a way that the essential ingredients were readily absorbed and made available to the cells. Thus the many kinds of proteins were decomposed into fragments, the amino-acids. Similarly the many kinds of carbohydrates were all converted into glucose, the chief fuel of the body. Likewise, the many kinds of fats were con-

verted into soluble soaps, which passed through the intestinal wall, and in their passage were re-converted into the fats needed by the body. Each part of the mechanism had its own contribution to make. The stomach not only produced the acids and enzymes needed for gastric digestion, but by its normal contractions sustained the appetite for food. It produced also a substance which, by its combination with some material of unknown nature contained in certain food-stuffs, gave rise to a product having the specific property of ensuring the normal formation of the red cells of the blood.

The same organ produced yet another substance which was necessary for the normal nutrition of the central nervous system. Thus early in the process of digestion the welfare of these two most important tissues, blood and nerve, was ensured.

In the duodenum there were glands which not only secreted gastric juices, but produced protective substances lest the acid contents of the stomach should, after leaving it, erode the mucous membrane of the bowel. There was no stage in the whole process of digestion, absorption, and passage of the gastro-intestinal contents which was not regulated and controlled by some substance derived from food.

Nutrition was affected adversely by a number of factors, such as imperfect oxygenation, insufficient rest and want of sleep, overwork, and fatigue, but by far the most important factor was food of improper constitution. The aspects of nutrition included the chemistry of food, metabolism, the activity of the various organs and tissues in response to food conditions, and structural and functional changes introduced in such organs and tissues by faulty food. A knowledge of nutrition helped to bridge the gulf between physiology and pathology, and was a foundation of rational medicine. Nutrition was not so much a condition as a function of the body on which its condition—that is, health—depended. It was more than food or nourishment, and to employ the term as an alternative for "food" was to miss its true meaning.

Dietary Habits and Physique of Indian Races

The lecturer next drew upon his great experience of dietary habits and physique in India to sustain his thesis that the greatest single factor in the acquisition and maintenance of good health is perfectly constituted food. No other factor, neither race, nor climate, nor endemic disease, had so profound an influence as food in determining the level of physical efficiency among the Indian races. In general the races of Northern India were wheat-eaters, the wheat being eaten whole in the form of cakes called "chapattis," preserving the proteins, vitamins, and mineral salts of the cereal. The next most important ingredients in their diet were milk and its products, pulse (dail), and vegetables and fruit. Meat was eaten sparingly if at all, though the Pathans consumed it in considerable quantity. These chapatti-fed races of Northern India were, so far as physique was concerned, among the finest races of mankind. On the other hand, the rice-eaters of the South and East of India, whose staple article of diet was a relatively poor cereal at best, and subjected to processes which reduced its already sparse supply of essential nutriments, were in general, of poor physique.

The lecturer related how he had given to a group of laboratory rats a diet as prepared and cooked by the Sikhs; to another group the diet of the Pathans; to a third that of the Mahrattas, and so through other races to the Madrassis, and the results conformed to those of observations made on man himself. The best diet, that of the Sikhs, contained in abundance every element and complex needed for normal nutrition; the worst, that of the Madrassis, was excessively rich in carbohydrates and deficient in suitable protein, mineral salts, and vitamins. So impressed was he by the adequacy of the diet of the Northern Indians that during the later years of his experimental work he used it as the stock diet for his rats, and in the stock so fed there was an absence of illness and of maternal and infantile mortality.

All things needful for adequate nourishment of the body and for physical efficiency were present in whole-cereal grains, milk and milk products, legumes, root and leafy vegetables, with egg or meat occasionally. What was eaten besides these was more a matter of taste than of necessity. The diet must also be complete in every essential. It was not to be expected that by substituting wholemeal bread for white bread health would benefit ulness the substitution completely restored the balance of an ill-balanced diet; nor that by adding bottled vitamins or mineral elements to a faulty diet its faults would be remedied unless they were confined to such vitamins or elements.

Experimental Research on Nutrition

The lecturer described comparative studies of rats to demonstrate the freedom of well-fed animals

from disease and the proneness to disease of animals fed on such a diet as was commonly used by the poorer classes in England—namely, white bread, margarine, and over-sweetened tea, with a little milk, boiled cabbage, boiled potato, tinned meat, with jams of the cheaper sort. Rats fed on this diet showed stunted growth and other signs of poor condition. They were susceptible to two chief classes of ailments—namely, pulmonary and gastro-intestinal—while a more perfectly constituted diet, such as was commonly used by Northern Indian races, afforded a considerable measure of protection against such conditions.

Peptic ulcer was very common in the south of India, rare in the north. An experiment, continued for seven hundred days, on groups of rats fed respectively on diet as used by the Sikhs, diet as used by the poorer classes of Madras, and diet, largely tapioca, by the poorer classes in Travancore, showed on post-mortem examination of the animals that the first group had no peptic ulcer, the second group had it to the extent of 11 per cent, and the third group to 29 per cent. Rats fed on the perfectly constituted diet of the Sikhs remained in good health and did not develop, for instance, stone in the urinary tract, but if milk and milk products were removed, and fresh vegetable foods cut down to a minimum, many did develop it as well as a wide variety of other ailments. No doubt other factors were concerned in the causation of "stone," but a perfectly constituted diet, rich in milk and fresh vegetable foods, afforded a high degree of protection. He enumerated the maladies he had encountered in improperly fed animals the clinical evidences of structural and functional changes in organs or parts of the body that resulted, directly or indirectly, from faulty nutrition.

Food Essentials

In his second lecture Sir Robert McCarrison dealt with the essentials needed for the efficient construction and maintenance of the fabric of the body and the regulation of its processes. Before discussing proteins, mineral salts, and vitamins, he glanced at oxygen and water, which, strictly speaking, were to be regarded as foods, and emphasized the necessity for efficient oxygenation of the tissues and also the outstanding importance of water to the body. "The first rule in dietetics is to drink water in abundance."

Proteins and Mineral Salts

The chief role of the proteins was to provide materials for growth and repair. The daily requirements of the body for proteins were approximately 1 gram per kilogram of normal body weight; more than this was undesirable excess. Sources of proteins among animal foods, were milk, meat, glandular organs, eggs, and fish, and among vegetable foods, legumes, whole-cereal grains, seeds, nuts, and green vegetables. Those derived from animal sources were in general more suited to the needs of the body than those derived from vegetables, but it was not necessary that the protein requirements should be chiefly from animal sources; it sufficed if one-third of them were so derived. Nor was it necessary that "good" or "first-class" protein be derived from meat, for milk furnished some of the best of all proteins, and well able to leaven the whole lump of those derived from vegetable foods. For this reason as well as others, the use of milk and cheese as articles of diet should be greatly extended. Much more use might be made of better-class vegetable proteins, such as those of the soya bean, legumes, and nuts, and much less use of the flesh of animals.

The mineral constituents of food consisted of some twenty elements, of which eleven, already enumerated, were known to be essential to vital processes. They provided building materials for the fabric and regulated various functions of the body. All were concerned in controlling the normal exchanges of body fluids and the permeability of the cell membranes; some maintained and regulated the neutrality of the blood, others the normal contractility of muscles and excitability of nerves; some entered into the composition of the digestive juices; others took part in the transport of oxygen from the lungs to the tissues and of carbon dioxide from the tissues to the lungs. The more the mineral constituents were studied the more important their role in nutrition was found to be.

Four of them—namely, calcium, phosphorus, iron, and iodine—were of outstanding importance. Calcium was made use of in the body to the extent of about 0·68 gram daily; but to allow a fair margin for waste and non-absorption, the food should provide at least 1 gram a day. The allowance for expectant mothers and growing children should be even greater. The growth of bones and teeth as well as of the body generally, menstruation, pregnancy and lactation made special demands. Want of calcium led to decalcification and impaired muscular activity. Foods rich in this constituent were milk, cheese, turnip-top greens,

black treacle, almonds, watercress, egg-yolk, peas, beans, and green leafy vegetables of all kinds.

Phosphorus played a conspicuous part in all cellular activities, and entered largely into the composition of bones and teeth. It should be provided in the diet to the extent of about 1·5 grams daily, and increased during pregnancy to 2 grams. Foods rich in phosphorus were cheese, egg-yolk, lean meat, almonds, nuts, whole-wheat, liver, milk, fresh beans, spinach, brussels sprouts, and potatoes.

Iron, an essential constituent of hæmoglobin, was lost daily from the body to the extent of 7 to 8 mg. by way of the fæces, and about 1 mg. by way of the kidneys. It had been estimated that the iron content of the average diet was rarely more than 10 mg. daily frequently as low as 5 mg. In these circumstances ill-health in the form of anæmia was likely to arise. The diet should contain at least 15 mg. daily, and during pregnancy the amout ought to be increased to 20 mg. Foods rich in iron were lentils, egg-yolk, liver, beans, black treacle, oatmeal, whole-wheat, turnip-tops, spinach, prunes, dates, and raisins.

Iodine was an essential constituent of the thyroid gland. In normal circumstances the daily requirements of iodine were about 1/1000 of a milligram. Growing children and pregnant and lactating women needed more. More also was needed when the diet was rich in fats or contained an excess of lime and more in conditions of infection. Foods rich in iodine were sea-foods, cod-liver oil, eggs, goat's milk (in India), millet, fresh vegetables, and some condiments such as cloves, ginger, and black pepper. Other important mineral elements were magnesium, copper, chlorine, fluorine, and sulphur.

THE VITAMINS

The lecturer then traversed the familiar ground of the vitamins. Each of the five classes, he said, had its own part to play in nutrition—a part that could not be taken by any other. Each had its specific relations to certain structures of the body: vitamin A to epithelium and nerve; vitamin B to the gastro-intestinal tract, nervous system, and skin; vitamin C to the cement substance that bound he cells of the body together; Vitamin D to the bones and teeth, and vitamin E to the reproductive system. But their relations were not confined to these. Thus one supported another, and all were closely intertwined in their action with other essential constituents of the food. The maladies resulting from a deficiency of vitamin A were, with the exception of night-blindness, usually the result of superimposed infection, and involved, singly or in combination, many systems of the body. He emphasized that the local maladies brought about by such deficiency were often, because of the associated local infection, not readily curable by the provision of the vitamin, for the reason that the pathogenic organisms, once they had taken root, were difficult to eradicate, especially in parts of the body where structural and functional changes had taken place.

Vitamin B was a complex, said to consist of some six or seven fractions, each with its own function, but their separation was largely a laboratory manœuvre—a feat rarely indulged in by Nature. Vitamin B was intimately concerned with the maintenance of neuro-muscular efficiency. Beri-beri was always associated with deficiency, though the vitamin deficiency was not always followed by beri-beri. Insufficient ingestion of vitamin B_1 was a common food fault, due mainly to the extensive use of vitamin-poor or vitaminless carbohydrate foods, such as polished rice, white flour, and sugar. Vitamin B_2 was specially concerned in maintaining the health of the skin and the integrity of the nervous system. Deficiency of this fraction gave rise to intestinal disorder, lesions of the skin, and, when the deprivation was severe, mental derangement. Deficiency of vitamin C might lead to hæmorrhages in various parts of the body, to sallowness and other affections of the skin, to fragility of bones, and to other degenerative changes. On the basis of animal experiment it seemed likely that such deficiency had some relation to rheumatism and intestinal tuberculosis. The function of vitamin D was to promote the absorption of calcium from the intestine, and to assist in maintaining its normal level in the blood. Its deficiency led to the occurrence of rickets and impairment of dental structure. It was not yet clear whether vitamin E, concerned with the maintenance of functional efficiency of the reproductive system, had any very important part to play in this regard in human beings.

The lecturer indicated the sources of vitamins in foods. Vitamin A was found in animal fats, cod-liver oil, milk, butter, liver, eggs, herrings, carrots, and fresh green vegetables. The richest natural source of vitamin B was dried brewer's yeast. Rice polishings, bran, and wheat germ were all good sources of vitamin B, as were egg-yolk, liver, kidney,

heart, watercress, cabbage, spinach, lettuce, carrots, and tomatoes. Whole-cereal grains were, in general, poor sources of B_2 though relatively rich sources of B_1; muscle, meat and milk, while rich in B_2, were relatively poor in B_1; and white of egg was the only known food in which B_2 occurred without B_1. Rich sources of vitamin C were parsely, orange peel and juice and lemon juice, green chillies, cabbage, brussels sprouts, cauliflower, and other green leafy vegetables. Vitamin D was found in cod-liver, halibut, and other fish oils, liver, kidney, butter, and egg-yolk. Vitamin E was widely distributed among foodstuffs, occurring in wheat germ, eggs, milk, lettuce, spinach, and a number of others.

On vitamins in general he said that it was during the early and growing period of life that an optimum supply of all vitamins was so necessary. The foundations of disease were often laid by their inadequate provision in early life; this was particularly true of diseases following deficiency of vitamins A and B. He objected to the limiting descriptive terms "anti-xerophthalmia," "anti-beri-beri," "anti-scorbutic." However useful in the past, they concentrated attention on particular deficiency diseases, and conveyed the impression that all that the vitamins had to do was to prevent them. But in fact, these specific deficiency diseases were associated in their origin with severe degrees of vitamin deprivation, degrees encountered relatively rarely outside the laboratory. But milder degrees were much more common, and it was the lesser degrees of vitamin deficiency and the less obvious manifestations of such deficiency which were of importance in Western countries.

Diet and Physical Efficiency

In his concluding lecture Sir Robert McCarrison had many useful things to say on the paramount importance of food in the prevention of disease. He began by showing a diagram prepared from the material provided by the annual report of the Chief Medical Officer of the Ministry of Health for 1933, wherein it was shown that diseases of the respiratory and of the digestive system accounted for more than one-third of all illness in the insured population of England and Wales. A similar diagram prepared from the report for the same year of the Surgeon-General of the Madras Administration, after making certain adjustments for purely tropical ailments, showed that these two systems of the body again accounted for approximately one-third of all sickness among persons of the hospital class. If these two classes of diseases were, as they had proved to be, a chief consequence of feeding rats on a diet in common use by the poorer classes in the United Kingdom and also in common use by the poorer class Madrassi, then these diets *per se* were likely to be favourable to the production of such maladies in human beings.

The relative incidence of certain diseases in Madras and in the Punjab was illuminating, bearing in mind that the diet of the poorer classes in this country afforded as little protection against disease as that of the Madrassis, and that the diet of the people of the Punjab was, in general, of better constitution than either. Tuberculosis was nearly twice as common in Madras as in the Punjab; leprosy was also much more common. Diseases of a chronic and degenerative kind were found more frequently in the south than in the north of India. Peptic ulcer was nearly sixty times more common, rheumatism nearly five times as common, cancer three and a half times as common, anæmia and malnutritional diseases generally (excluding beri-beri, which rarely occurred in the Punjab) more than twice as common, rickets four times as common. These and other like differences in the incidence of disease as between the two parts of India could be accounted for in large part by the difference in the nutritive quality of the diet of the peoples.

Partial Degrees of Vitamin Insufficiency

Returning to the seriousness of partial degrees of vitamin insufficiency, on which he had dwelt in his second lecture, the lecturer stressed the consequence of inadequate ingestion of vitamin B, which appeared to him to be a conspicuous fault of the diet of the British people. The fault was due to the extensive use of vitamin-poor wheat flour and the inordinate use of vitaminless sugar. The excessive richness of the average diet in these two carbohydrates gave rise to insufficiency of vitamin B_1 for two reasons: first, because the food, as a whole, did not contain enough of it, and, secondly, because relative to the richness of the diet in carbohydrates the greater is the need for vitamin B_1. He quoted from Dr. G. E. Friend, Medical Officer, Christ's Hospital, Horsham, that the "deficiency of white bread in vitamin B is one of the most serious dietary deficiencies to which our populations are being subjected at the present

time," and to this the lecturer added that the inordinate use of refined sugar was one of the most serious addictions of the day. In America it had been recognized that the " bread-meat-potato-sugar " diet, and the average diet in this country was of the same order—was dangerously low in this important factor unless it was supplemented with a sufficiency of milk, eggs, fruits, nuts, and vegetables. Many experiments had been made during the last few years among American children which showed the good effect of the supplementary provision of vitamin B and observers both in this country and in the Near East had come to the conclusion that a large proportion of infantile mortality associated with gastro-intestinal disturbance might be due to a deficiency of this fraction consequent on the relative poverty of the mother's milk and of cow's milk in this vitamin.

Faulty Nutrition and National Physique

The lecturer cited evidence from various sources of physical inefficiency in this country. The report of the Adjutant-General for 1934 showed that 52 per cent. of the men who went to the Army recruiting office did not reach the physical standards laid down. The Pioneer Health Centre at Peckham had carried out a survey which showed that 90 per cent. of persons over 25 years of age in the families of the artisan class investigated had some physical defect. The loss of working time caused by sickness of an incapacitating, not a killing, nature among the insured population was well known. In 1934 the Chief Medical Officer of the Board of Education reported that during routine medical examination twelve children out of 1,000 were found to be mal-nourished and fourteen out of 1,000 under-nourished. On this the lecturer added:

" Believing, as I do, that sickness is more often the result of malnutrition than malnutrition the result of sickness, I venture to think that the evidences of malnutrition in school children are likely to be more widespread than these figures indicate. For it is not only that children suffering from malnutrition are under-weight or undergrown; these physical defects, this bad or capricious appetite, this constipation or digestive disturbance, this anæmia, this poor circulation, this faulty function of the skin—these are themselves consequences of faulty nutrition, and, as a rule, it is this that gives rise to them, not they that give rise to the faulty nutrition. If we take this view of ' malnutrition ' in school children—and for my own part I believe it to be the correct one—then it will be found that there are in this country not 12 per 1,000 who are suffering from it, but several times that number; nor will it be found to be confined exclusively to the poorer classes. Indeed, the widespread incidence of dental caries and of minor rickets is, in itself, sufficient evidence that this is so."

In the report of the Chief Medical Officer of Health for 1933 a certain uneasiness was apparent that all was not well with the nutrition of the British people. True, it was stated that the evidences of malnutrition were not widespread, and that held good, no doubt, of the grosser evidences, but was it true of the less obvious manifestations?

From the report just mentioned it appeared that the food essentials most likely to be deficient in the diets of the people of this country were proteins of high biological value, calcium, iron, and vitamins A and D, to which the lecturer added B. The Committee on Nutrition set up by the British Medical Association in 1933 declared that " a shortage of calcium, phosphorus, and iron is not uncommon." The phrase " not uncommon " meant, or might mean, according to the degree of the shortage, impairment of every vital function, stunting of growth, poor physique and bone formation, rickets (not necessarily of the florid type), tooth decay, lessening of muscular efficiency, abnormal response of nerves to stimuli, disturbance of menstruation and lactation, disturbance of the neutrality of the body and the interchange of body fluids, anæmia, and all its attendant consequences.

" And if with these we are to include a shortage of vitamins A and D as the report of the Chief Medical Officer of the Ministry of Health suggests we may, and of vitamins B and C—as there is good reason to believe we should—then to these consequences of mineral shortage there are to be added those of vitamin shortage, in themselves a formidable array, and not the least important of which is lowered resistance to local infections. It must be obvious that faulty food is directly or indirectly responsible for a very large proportion of ill-health to-day."

Prevention of Disease and Maternal Morbidity

Concerning disease prevention and the part which properly constituted food might play therein, he cited Miss Margaret Macmillan's book. The Nursery School, which he said ought to be an obligatory text-

book for every student of medicine; also the experience of the Papworth Settlement for the subjects of tuberculosis, in which during twenty years no child born to the families had contracted any clinical form of the disease, thanks, first of all, to adequate food supply; and, again, the ante-natal work in Dublin, based on improving the nutrition of expectant and nursing mothers. Faulty nutrition was a factor in maternal mortality. Abundant evidence was derived from experiments on animals that the activity proper to the function of reproduction was influenced unfavourably by faulty nutrition, especially insufficiency of vitamin A.

A well-balanced diet during pregnancy would contain 70 grams of protein, of which one-third must be derived from animal sources; an abundance of all vitamins, including vitamin D, which, however, should be provided in the form of cod-liver oil so as to avoid the risk of overdosage and as an additional source of iodine; 2 grams of calcium; 1·6 grams of phosphorus; 0·3 gram of magnesium; and 20 mg. of iron. The best diet for expectant mothers was one made up of whole-cereal grains, milk, milk products, and eggs, with fresh green vegetable foods, and fruit in abundance.

In conclusion, Sir Robert McCarrison stressed certain general considerations. The main burden of ensuring that each member of the community should receive a diet which satisfied his physiological needs must rest on the Government, but there was much that individuals could do, and that the medical and allied professions and the teaching profession could do, in acquainting themselves with the principles of nutrition practising them, and inculcating them. Was it beyond the organizing capacity of the nation to obtain an adequate production and distribution of fresh vegetable foods, dairy produce, and eggs? As for milk, he did not share to the same extent the objections put forward in some quarters to sterilization. It was true that the treatment did deprive the milk of some nutritive quality, but of little that could not be made good by the adequate use of fresh vegetable foods, and even in its sterilized state it remained the best and cheapest of foodstuffs. But the provision of fresh vegetables was as much a national necessity as the provision of milk. He rather dissented from the inclusion in a recent authoritative report of meat as among the " protective " foods. It was probably so included because it was a rich source of good protein and of vitamin B; but it was poor in certain other essentials and by naming it " protective " the impression was created that health depended upon its inclusion in the diet, which it did not. Far better to encourage the use of inexpensive but none the less nutritious foods, (milk, cheese, herrings, whole-meal bread, vegetables), from which satisfying and well-balanced meals could be made at a relatively low cost.

The medical and teaching professions were in a position greatly to aid the endeavours of the Government in " the building of an A_1 nation." Nutrition was an integral part of preventive medicine, and as such should be given a place in the medical curriculum. commensurate with its importance. Only when the medical profession was itself fully instructed could it play its parts in the instruction of the public. There were many other directions in which educational effort might also proceed.

Economic conditions made it difficult for large numbers of people to procure satisfying diets, but there were signs that the cloud was lifting, and there was no lack of evidence both of desire and of effort to ensure a better way of life for the less fortunate. (*British Medical Journal*, Feb. 29, 1936, pp. 427-430).

MEDICAL NOTES AND NEWS

TUBERCULOSIS TESTS FOR CATTLE

Large-scale tests in Britain of the Spahlinger vaccine for the prevention of tuberculosis in cattle is urged in a report issued in London by the Joint Committee of the Medical Research Council and the Agricultural Research Council on tuberculosis.

The report is this country's first official comment on the exhaustive experiments which have been carried out on cattle in Northern Ireland with the Spahlinger vaccine. From it emerges the fact that:—

Nine out of the eleven calves "immunised" with the vaccine survived deliberate attempts to infect them with tuberculosis while out of a group of seven "non-immunised" animals, five died.

The report points out, however, that " since the calves were not tested with tuberculin before the experiment, it is not possible to be certain that none of them were infected at that time."

"The test dose," it continues "was larger but less virulent than that used in some other experiments, with which this one might otherwise have been compared."

"It is not stated," the report also says, "what tests Mr. Spahlinger applied to ascertain and compare the value of the different batches of vaccine manufactured."

In view of these circumstances the Committee state that they consider that more information is required concerning the system of vaccination before the method could be introduced into practical farming. For this reason, a comprehensive test in Britain is urged.

" Besides the need for experience in preparing and testing the vaccine before use," continues the report, " experiments would be required to determine":—

(a) " Whether the tuberculin test interferes with vaccination as suggested by Mr. Spahlinger;

(b) " The best dose of vaccine and the best manner of vaccination;

(c) " The most suitable age for vaccination, how early in life it is safe to vaccinate a calf;

(d) " The time after vaccination at which immunity appears and how long it lasts;

(e) " The persistence of immunity in animals exposed once or repeatedly to infection by natural means, especially whether vaccination early in life would protect under farming conditions at an age when heifers must join the herd, *i.e.*, when they calve for the first time;

(f) " Whether natural exposure to infection, as opposed to an intravenous test dose, would result in only mild or negligible infection, as has been suggested."

The Ulster tests on which the report is based have been spread over a period of three years. An essential feature of them is that the vaccine must contain no living bacilli.

The preparation of such vaccine takes two years for Mr. Spahlinger's method is to let the bacilli die a natural death.

INTERNATIONAL CONGRESS ON HEPATIC INSUFFICIENCY

An International Congress on Hepatic Insufficiency will take place at Vichy in 1937, under the presidency of Professor Loeper, member of the Academy of Medicine.

The Congress will be divided into two sections: Medicine and Biology, and Medical and Surgical Hydrotherapy.

This scientific meeting is a sequel to the Congress on Biliary Lithiasis in 1932 which was presided over by Professor Carnot.

INTERNATIONAL UNION AGAINST TUBERCULOSIS

The Executive Committee and the Council of the International Union against Tuberculosis, whose Secretary-General is Professor Fernand Bezancon, met in Paris, at the Headquarters of the Union, 66, Boulevard St. Michel, on the 10th and 11th July, 1935, under the chairmanship of Dr. Piestrzynski, Under-Secretary of State for Poland. Delegates from 20 countries attended this meeting. The administrative meeting of the Council was devoted to the preparation of the programme of the Conference

of Lisbon which is due to take place on the 8th, 9th and 10th September, 1936. The agenda of this Conference is now definitely settled and will include the three following subjects: 'Radiological aspects of the pulmonary hilum and their interpretation,' opening report by Professor Lopo de Carvalho (Portugal); 'Primary tuberculous infection in the adolescent and the adult,' opening report by Dr. Olaf Scheel (Norway); 'The open case of tuberculosis in relation to family and domestic associates,' opening report by Sir Henry Gauvain (Great Britain).

At the scientific meeting of the Council Professor Lyle Cummins (Cardiff) occupied the chair, Professor Madsen of Copenhagen submitted a report on 'Tuberculin standardization and tuberculin tests,' Dr. Kendall Emerson, Managing Director of the National Tuberculosis Association, gave an account of the work of Dr. Long and his collaborators who claim to have isolated the active principle of tuberculin. In a discussion in which Professor Madsen, Professor Lyle Cummins, M. Boquet, Professor F. Bezancon, Professor Sergent, Professor Debre, Dr. Lesne, Dr. Rist, Dr. Troisier Dr. Saenz, etc., took part, the respective merits of Pirquet's cuti-reaction and Mantoux's intradermal test were compared. The majority of the French speakers expressed a preference for the former method while their colleagues from other countries spoke on behalf of Mantoux's test. They all agreed on the advisability of adopting a standard tuberculin and a uniform tuberculin test. (*Indian Medical Gazette*).

IRWIN HOSPITAL OPENED

In the presence of a large and distinguished gathering consisting of the Maharaja of Travancore, Prince Mudzzam Jah and Princess Niloufar of Hyderabad, Members of the Viceroy's Executive Council, the President in Council of State and Members of the Central Legislature, the Viceroy opened the Irwin Hospital in New Delhi on April 7 last.

The hospital stands in its own ample grounds of 60 acres and is elaborately equipped. Provision is made for accommodating 260 beds in addition to 20 in family wards and 32 in special wards. All modern facilities such as artificially air-cooling arrangements, heaters, shower baths, up-to-date X-Ray equipment, etc. have been provided.

The Eye and the X-Ray departments of the Municipal Hospital near the Jumma Masjid are being transferred to this new hospital and this, make it self-contained. It is hoped that the Irwin Hospital with its up-to-date equipment will be one of the most modern in Northern India and will be a notable addition to the amenities of Delhi. The hospital will be under the control of the Local Administration. The latter's budget will bear the charges of its maintenance towards which the Municipalities of Delhi and New Delhi have promised to make an annual contribution of Rs. 20,000 and Rs. 10,000 respectively for five years.

SILVER JUBILEE FUND GRANT TO ASSOCIATIONS

At a meeting of the Executive Committee of the Silver Jubilee Fund (United Provinces branch) held at the Government House early in April, the question of final distribution of the amount collected for the Silver Jubilee Fund in the United Provinces was considered.

The total amount collected and sent to the central branch of the Silver Jubilee Fund was Rs. 11,54,896-5-8; of this the sum of Rs. 8,08,409 was returned by the central fund for distribution within the provinces.

It was decided at the meeting:—

(a) that Rs. 100,000 should be granted to the Provincial Red Cross Society for a provincial centre for the training of health visitors and midwives for the whole province, this to be conducted in Lucknow, and that vacancies at the training centre would be allotted to candidates from all parts of the provinces at a fixed annual quota for each division provided that suitable candidates were forthcoming up to this number from each division;

(b) that Rs. 10,169 be granted to the provincial branch of the St. John Ambulance Association for various schemes that they have recommended;

(c) that a sum of Rs. 2,50,000 be granted to the Dufferin Fund (United Provinces Branch) for distribution to districts in accordance with schemes recommended by them;

(d) that a sum of Rs. 4,00,000 be allotted to the Provincial Red Cross Society, U. P. Branch, for distribution to districts in accordance with the schemes recommended by the Red Cross Society, and

(e) that a small sub-committee be formed to allot the balance of approximately Rs. 48,000.—*Leader.*

ASSOCIATION NOTES

CENTRAL COUNCIL

The following representation was submitted to the Income Tax Inquiry Committee at Delhi on the 20th March, 1936, on behalf of the Indian Medical Association:—

To

THE EXPERT ADVISERS TO THE GOVERNMENT OF INDIA ON I.T. SUBJECTS.

DEAR SIRS,

On behalf of the Indian Medical Association, I have the honour to submit the following representation for favour of your consideration.

1. In assessing Income, the following outgoing should be allowed:—

A. Conveyance charges:—For motor-cars, if it is occasionally used for private purposes, not more than 50 per cent., is at present allowed. This, we maintain, is hard on the profession. We are of opinion that no such limit should be arbitrarily fixed, but each case should be decided on its merits. In any case as the car is primarily used for professional purposes, at least 75 per cent., of expenses should be allowed in every case, if not more.

B. Depreciation of car. At present a maximum of 10 per cent., if used solely for professional purposes, and 5 per cent. if used for occasional private purposes, is allowed. This we feel is unjust. At least 20 per cent., as is done in England, should be allowed.

C. Instruments:—Cost of Instruments, and depreciation for wear and tear should be admissible expenditure.

D. Books:—Cost of Medical books should be allowed as expenses. In India, libraries being very few, and far away, the medical man has to spend a large amount in maintaining his own library. Moreover, medical books, unlike other books, become valueless as soon new editions are out.

E. Cost of medical journals subscribed and membership fees of medical societies should be admissible expenses.

F. Newspaper etc. for the use of patients in the waiting rooms.

G. An equitable proportion of the annual value (or, if rented, of the rent) of any premises used partly for professional purposes. In deciding this, other factors besides the actual floor space used for professional purposes should also be considered, as in England.

2. In assessing income, there is usually some doubt cast on the genuineness of income shown because medical men are unable to keep accounts like business firms. Unless proofs to the contrary are forthcoming diaries of medical men should be accepted without any question.

3. In assessing income from dispensing actual figures should be accepted without insisting on the orthodox method of accounting, stock taking etc. The usual practice of fixing 70% of takings, as profit from dispensing is nowadays unjustified, owing to costly proprietory medicines being largely prescribed. When actual figures are not available, 50% of takings as gross profit should be fixed. In practice, the laws are not uniformly administered even in the same province thus causing confusion and hardship to many medical men. It would be desirable to enforce the laws uniformly at least in the same province. In conclusion, I beg to state that I shall personally explain, on behalf of Indian Medical Association, any points that may need clarification.

Yours faithfully,
S. C. SEN,
Hony. Asst. Secy., I. M. A.

* * * *

JOURNAL OF THE I. M. A.

JOURNAL COMMITTEE 1935-36

1. Sir Nilratan Sircar, Kt., M.A., M.D., D.C.L. &c.
2. Dr. K. S. Ray, M.A., B.SC., M.B., ch.B. (Edin.).
3. Lt.-Col. K. K. Chatterji, F.R.C.S.I., I.T.F.
4. Dr. C. C. Basu, B.A., M.B.
5. Dr. S. C. Sen Gupta, M.D., F.R.C.S. (Edin.).
6. Capt. P. B. Mukherji, B.SC., M.B., D.M.R.E. &C.
7. Dr. J. N. Dutt, B.SC., M.B.
8. Dr. A. K. Sen, M.B.
9. Dr. Miss Maitreyee Bose, M.B. (Cal.), M.D. (Munich).
10. Dr. A. C. Ukil, M.B., M.S.P.E. (Paris).

COLLABORATORS, 1935-36

1. Dr. A. K. Sen, M.B., F.R.C.S. (Lond.), D.P.H., *Calcutta.*

2. Dr. Sambhu Nath Mukherjee, M.B. (Cal.), D.M.R.E. (Cantab.), *Calcutta.*
3. Dr. Hemendra Nath Chatterjee, M.B., *Calcutta.*
4. Dr. Sourendra Nath Banerjee, M.Sc., M.B., *Calcutta.*
5. Dr. R. K. Pal, M.Sc., M.B., M.R.C.P. (Edin.), D.Sc. (Edin.), *Calcutta.*
6. Dr. Prasanta Kumar Ghosh, M.B., D.T.M. (Cal.), M.R.C.P. (Lond. & Edin.), T.D.D. (Wales), *Calcutta.*
7. Dr. P. C. Rakshit, M.Sc., M.B., *Calcutta.*
8. Dr. S. N. Mistri, F.R.C.S. (Eng.), *Karachi.*
9. Dr. C. A. Amesur, M.S., D.L.O., M.B., B.S. (Lond.), M.R.C.S. (Eng.), *Karachi.*
10. Dr. N. A. Purandare, M.D. (Bom.), *Bombay.*
11. Dr. A. S. Erulkar, L.R.C.P., M.D. (Lond.), M.R.C.S. (Eng.), *Bombay.*
12. Dr. G. V. Deshmukh, L.M.S. (Bomb.), M.D. (Lond.), F.R.C.S. (Eng.), *Bombay.*
13. Dr. T. S. Tirumurti, M.B., C.M., D.T.M. & H., *Vizagapatam.*
14. Dr. T. Caul, M.B., ch.B. (Edin.), L.M. (Rotunda), *Cawnpore.*
15. Dr. N. Sinha, M.B.B.S., *Cawnpore.*
16. Dr. Mool Singh Bazaz, B.Sc., M.B.B.S. (Capt., Ex.-I.M.S.), *Delhi.*
17. Dr. A. Roy Chowdhury, B.Sc., M.B., (Capt., Ex.-I.M.S.), *Delhi.*
18. Dr. N. L. Ranade, M.B.B.S., *Poona.*
19. Dr. M. G. Oka, L.M. & S., B.M.S. (Capt., Ex.-I.M.S.), *Poona.*
20. Dr. S. M. Ghosal, M.B., M.R.C.P. (Lond.), *Patna.*
21. Dr. S. K. Ghosh Dastidar, M.B., D.T.M., M.R.C.P. (Lond.), *Patna.*
22. Dr. T. B. Servate, M.B.B.S., *Jubbulpore.*
23. Dr. V. R. Sen, M.B.B.S., *Jubbulpore.*
24. Dr. A. Hameed, M.D., M.R.C.P., *Lucknow.*
25. Dr. T. R. Swarup, M.B.B.S., M.R.C.P. (Lond.), M.R.C.S. (Eng.), *Lucknow.*

PUNJAB PROVINCIAL BRANCH

At the Provincial Conference of the Punjab Branch held at Gujranwala on 15th March, 1936, the following were elected as office-bearers for the year 1936:—

President—R. S. Dr. S. N. Kaul.
General Secretary—Dr. K. R. Chaudhri.
Organising Secretary—Dr. Balbir Singh.

RESOLUTION PASSED AT THE ANNUAL CONFERENCE

1. This Conference requests the Local Government to make arrangements for the advanced training of the Licentiates of the State Medical Faculty, Punjab, and to introduce Rules for their admission to the M.B., B.S., degree of the Punjab University.

2. This Conference resolves that in future, the Provincial President and the Provincial Secretary of the Punjab Branch of the Indian Medical Association shall not hold office for more than a year in succession. Further resolved that the Provincial Secretary shall be duly elected at a session of the Annual Provincial Conference, any member of the Indian Medical Association in the branch from which the President is elected being eligible for election.

3. This Conference requests the Central Organisation of the Indian Medical Association to designate its Annual Session as the "Conference of the I.M.A." with the serial number of the session as prefix, and to direct the Provincial members to introduce a similar designation with the name of the branch as suffix.

4. This Conference emphasises the desirability of appointing suitable medical men and women as Honorary Physicians, Surgeons, etc., in Government and aided hospitals in the Province and requests the Local Government to introduce such appointments in the interest of the public and the profession as well as in the interest of economy and expediency.

5. This Conference is of opinion that the decision of the Punjab Medical Council in disallowing the registered medical practitioners to attend its ordinary meetings is unjustified and against the spirit of the Punjab Medical Registration Act, 1916, and requests the Council to remove this ban particularly in view of the Rules of the Bombay Medical Council and of the Medical Council of Great Britain and Ireland on the subject.

6. This Conference is strongly of opinion that, with the widespread prevalence of quacks and charlatans, the time is now fully ripe for the regulation and control of medical practice in Vedic, Unani and Homeopathy, and requests the Local Government to enact the necessary legislation providing, among other things, a register for the practitioners in these systems.

7. This Conference emphasises the urgent necessity of a Dental Register in the Punjab, and requests the Local Government to introduce a Dentists Act in

the province on the lines of a similar Act in Great Britain.

8. This Conference emphasises the urgent necessity of a Pharmacists register in the Punjab, and requests the Local Government to introduce a pharmacy Act in the province on the lines of a similar Act in Great Britain.

9. Having regard to the fact that Government servants in all departments are debarred from indulging in private business or trade, this Conference requests the Local Government to prohibit their medical servants also from such indulgence since it is inimical to their official duties and is prejudicial to the independent profession provided that they may practise as consultants on reference by independent practitioners.

10. This Conference feels that the system of Official counter-signature of certificates of health, sickness vaccination, etc.; in so far as it applies to registered practitioners in independent practice, is detrimental both to their prestige and practice, and requests the Local Government and N. W. Ry., and other departments to so modify its Rules as to provide for the acceptance of their certificates without any encumbrance beyond that imposed by the Punjab Medical Council. It further requests the members of the Indian Medical Association to be more discreet in issuing such certificates.

11. This Provincial Conference of the Indian Medical Association held at Gujranwala on 15.3.36 requests the Punjab Telephone Engineering Department, to stop the practice of inserting the names of unregistered Medical Practitioners in the Telephone Directory under the caption "Surgeons".

To facilitate the matter this Conference asks the Punjab Medical Council to please provide the list of the registered medical practitioners to the Telephone Deptt. and to take other necessary steps to achieve this object.

12. This Provincial Conference of the I. M.A. held at Gujranwala requests the Punjab Government to please amend the Bogus Medical Degrees Act 1916, in such a way as to make it unlawful for the unqualified practitioners to write any letters or words, with their names, which may denote in a direct or indirect way the resemblance of these letters or words to the genuine and bonafide medical degrees. Further it requests the Government to please declare it an unlawful practice for unqualified medical practitioners to place or write the words or designation of "Doctor" with their name.

AMRITSAR BRANCH

Secretary's Report for 1934—1935

Mr. President, Ladies and Gentlemen,

With the close of a year's term it is customary to recapitulate activities undertaken during the period. I am sure you are all, more or less acquainted with whatever has been accomplished, all the same it would be only proper for me to sum up before you the last year's progress and work.

Last year's Office-bearers are:—
President—Dr. H. F. Maneckshaw.
Vice-President—Dr. Manoharlal Chopra.
Secretary—Dr. Balbir Singh.
Joint Secretary—Dr. Hari Chand Mehta.
Propaganda Secy.—Dr. Manohar Lal Blaggana.
Treasurer—Dr. Sain Dass Vohra.
Members of the Executive Committee—

Dr. Sant Ram Bansal, Dr. H. R. Madan, Dr. Karamchand Mehra.

We met in 19 ordinary general meetings, and towards the end of the year an emergent meeting too was held. The subjects discussed before the Association in these meetings by ex-speakers who addressed it, chronologically were as per list attached marked.

The attendance at these meetings has been good. The average attendance has been 24. I am sure we all can derive satisfaction from this and trust that in future too the Association would continue to inspire interest in its members.

The Executive Committee held three meetings and the decisions arrived at those meetings have been conveyed to you all in due time. The number of resolutions passed, excepting the condolence items, has been 10 and a list of those is as under:—

1. This house thanks the outgoing Secretary and the Executive for the work done by them.

2. Apropos the letter from the Provincial Secretary I. M. A. This house is of opinion that the I. M. A. should participate in the elections to the Medical Councils, Central or Provincial, either by putting upon supporting candidates, whenever it is thought expedient and desirable. This house further opines that on all such occasions endeavours should be made to announce a timely decision and ensure application of adequate and concerted efforts.

3. That the President be empowered to open an account with the Punjab National Bank to be operated upon by the Treasurer and the Secretary. The house decided to operate it in the name of the Treasurer alone.

4. That the account be operated upon by the Treasurer and the Secretary.

5. In view of the alarming death rate from tuberculosis in Amritsar and the poverty and ignorance of the masses of the population with regard to this dreadful disease, the Indian Medical Association, Amritsar, strongly urges on the Municipal Committee, the need of their starting and carrying on a vigorous antituberculosis campaign by way of propaganda, by the institution of a Tuberculosis Dispensary and an open air Tuberculosis Hospital for the poor and middle class people, functioning on the lines as conducted in all civilized countries.

6. That the Amritsar Branch of the I. M. A. requests the Govt. to amend the Indian Medical Council Act 1933 so as to include the Medical Licentiates on its rolls and enable them to be the members of the Council. And that for the purposes of reciprocity with foreign universities, their diploma shall be recognised.

7. That the Amritsar Branch of the I. M. A. thanks and congratulates the M. C. for its acceeding to proposals of counteracting the menace of tuberculosis in the city by opening a dispensary and a hospital for the purpose. This Association is, however, of opinion that great care should be exercised in spending the small funds available and it is confident that in engaging staff for the Hospital experienced and properly trained qualifications alone would be entertained as without that no useful purpose could be served.

8. Dr. Bansal's resolution concerning the practices of the staff is yet under formulation.

9. Executive Committee's resolutions: That the members who do not pay up their subscriptions by the 15th of December should be informed that in the absence of their contribution to the Association they could not expect to continue enjoying the privileges of membership and that they shall pay up the arrears if they seek membership again.

10. That the house resolved to hold the annual meeting and election in the month of January on the 12th.

11. That the subscription in future be paid up by the 31st of March. Those members who fail to pay up their contributions by that date shall forfeit their rights of membership.

There have been some special activities undertaken by us, and among them I would place first:

The Quetta Relief Work—The members are full well aware of the yeomen service rendered by some 23 members of the Association a report of which also appeared in the Journal of the I. M. A. Our contribution consisted in attending to the injured and the invalid refugees from Quetta, at the Amritsar Railway Station. The hours of duty ranged from 6 in the morning to 12 at night. I am glad to tell you that there was universal appreciation of our services and the Association can legitimately take pride in having done its bit towards those of our countrymen and women whom wrath of nature had rendered homeless.

A Private Hospital Scheme—Another item had been the scheme for a Private Hospital at Amritsar. A suggestion to this effect had been advanced by Dr. K. C. Passi, and accordingly the President convened an informal meeting of some of the members of the Association for the purpose. This informal gathering appointed a sub-committee of Drs. Manohar Lal Blaggana, Baldev Singh and Balbir Singh to draft a scheme for erecting and maintaining a Private Hospital. The scheme was prepared and then thoroughly discussed at a number of meetings of the Committee, but the whole idea had ultimately to be dropped as the question of financing the project was considered insurmountable. This having been an informal and exploratory undertaking the report was not submitted to the house, but its outline and outcome were made known to the Association.

Investigation into the teaching institutes, etc. Thirdly, only recently the Association, by a resolution passed by it at its meeting of the 23rd November, appointed a Committee of seven members to go into the question of the standard of teaching at the Medical Institutes in general but the Amritsar Medical School in particular, and the system of allowing unrestricted private practice to the lecturers. The report of this Committee is ready and is under consideration. Reports of both these committees were drawn up by Dr. Manohar Lal Blaggana. We are very much thankful to him for taking all these pains.

Membership—The membership to-day stands at 53. Out of these 6 are new members.

The balance with us was Rs. 185/5/- and to-day it stands at Rs. 333/13/6. The details of the accounts are as follows:—

INCOME:

	Rs.	As.	P.
Last Balance	185	5	0
By subs. from 47 members ...	310	0	0
By subs. from 6 members, 1936 ...	32	0	0
By Donation	20	0	0
By Dinner Subscription	82	0	0
Total	629	5	0

EXPENDITURE

To Printing charges	28	0	6
To Stationery	5	10	0
To Postage	2	9	0
To Servants	9	8	0
To Miscellaneous	1	4	0
To Bank charges	2	0	0
To Central Association	138	0	0
To Temperance Hall	25	0	0
To Dinner expense	83	8	0
	295	7	6
Balance at hand	333	13	6
Total	629	5	0

A noteworthy point, which you would not have failed to take notice of, has been the lessened expenditure incurred by us, though the income accruing remains practically stationery. Indeed you would readily agree that in the absence of any fresh sources of income the best that can be done is to economise expenditure.

Propaganda Secretary's work—At the last annual meeting a secretaryship of propaganda was created, with a view to undertaking such activities, which were under contemplation in the minds of some members as would necessitate much publicity and memorial writing work. The functions of the Propaganda Secretary were defined at that annual meeting and again by a resolution of the August meeting which laid down that besides undertaking such activities as would be in the general interest of the Association, the Propaganda Secretary would draw up such material and give publicity to it, as the Association resolves upon from time to time. So far as resolving upon is concerned the Association has not made any formal decision up till now. I hope that after Dr. Bansal's resolution is passed we will be creating work for the Propaganda Secretary.

Ladies and gentlemen, I have taxed your patience considerably, and now it only remains for me to thank you for your uniform courtesy and help all these months. Not much could have been done but for your willing co-operation. Mr. President, Dr. H. F. Maneckshaw has been a tower of strength to us all. His ripe experience has stood us well and we have to thank him much. I am sure he would continue to serve and help the Association for many a long year. I have also to make mention of the Executive Committee.

The Treasurer had a very difficult task of collection before him and I am sure he has done his best to discharge his duties. We are indeed thankful to him for keeping the accounts of the Association in good order.

In the end, once again, I thank you all for your help and indulgence.

H. F. Maneckshaw, *President.* Balbir Singh, *Secretary.*

Subjects discussed and Names of the Lecturers

26-1-35. Dr. Baldev Singh—Biological aspects of music and singing.
16-2-35. Dr. Randhir Singh—Infections of the hands.
6-3-35. Dr. Manoharlal Chopra—Diagnosis of the enteric group.
23-3-35. Dr. Ishardas Bhatia—Pitfalls in general
6-4-35. Dr. Ishardas Bhatia—Pitfalls in general practice (continued).
20-4-35. Dr. Ishardas Bhatia—Pitfalls in general practice (concluded).
11-5-35. Dr. Partap Singh—Some aspects of Homeopathy.
25-5-35. Dr. Khushiram Mehra—Cerebrospinal fever.
21-6-35. Dr. Baldev Singh—Lobar Pneumonia.
6-7-35. K. B. Dr. Mir Hidayat Ullah—Prostate and the general practitioner.
3-8-35. K. B. Dr. Mir Hidayat Ullah—Prostate and the general practitioner (concluded).
7-9-35. Dr. Samuel Ramsingh—Study of stools.
—— Dr. Baldev Singh—Whither Medical Science?
—— Dr. Baldev Singh—Whither Medical Science (continued)?
—— Dr. Balbir Singh—Gonococcal Valvo-Vaginitis.
—— Dr. Baldev Singh—Whither Medical Science (concluded)?

DELHI BRANCH

The following is a correct and complete list of members of the Executive Committee of the Delhi Branch for the year ending 30th September, 1935:—

Dr. J. K. Sen, L.M. & S., President.

Dr. G. N. Khanna, M.B.B.S., Honorary Secretary & Treasurer.

Dr. Mrs. C. Solomon, B.A., B.T., M.B.

Dr. Mool Singh Bazaz, M.B.B.S.

Dr. A. Roy Chowdhury, B.Sc., M.B.

Dr. Raghubir Chand, M.B.B.S.

S. N. Mitter, M.B., D.O.M.S.

Dr. P.N. Sen, B.Sc., M.B.

Dr. S. C. Sen, M.B., D.M.R.E.

Representative to the Central Council—Dr. Mrs. C. Solomon.

CALCUTTA BRANCH

A largely attended meeting of eminent members of the medical profession was held at the Indian Medical Association, 67, Dharamtala Street, Calcutta, on February 2, when Dr. J. A. Pollia, Director of Cancer Research, Boyer Cancer Foundation, Los Angeles, California spoke on Cancer. The meeting was presided over by Col. K. K. Chatterjee.

In introducing Dr. Pollia, Col. P. Banerjee said:—

"Dr. Pollia comes from America. He is going round the world not only as a sightseer but to find out anything interesting and new in cancer research work. In this connection he has visited Japan, Malaya, Siam, Rangoon and has seen what is being done there. He has been connected with cancer research work for a number of years and is a Director of Cancer Research in the Boyer Foundation, Los Angeles, California. I have persuaded him to come and enlighten us on this very dark subject, and I hope that we shall be able to learn a lot from him, because I myself am very ignorant on the subject, and Dr. Pollia has very kindly agreed to answer any question arising out of his lecture. I would now ask Col. Chatterjee to take the chair."

Col. Chatterjee in taking the chair spoke as follows:—

"If there is ignorance about any subject in medical science, it is, as you know, about cancer. In the development of cancer, the more we go into it the more we are lost in darkness. This gentleman has devoted several years of his life in cancer research. We have stumbled into something and then we found we have stumbled into a wrong hole; we got ourselves out of it, and then stumbled into another hole which was wrong. I will not detain you long, but I will tell you what happened to me personally about nine years ago when I was in the West. My ambition brought me into research for cancer with reference to tropical conditions. I had made certain observations on cancer but I will not say anything now. We will first hear what the learned Doctor has to say, and possibly he will then solve most of the problems which were unsolved to me then and are unsolved to me even now. Devotees to cancer research are few and he is one of those honest, sincere devotees to research in this connection, it being the source of our life in medical science."

Dr. Pollia then addressed the gathering as follows:—

Col. Chatterjee and Col. Banerjee and gentlemen, I am very grateful to have been invited to speak before this group. I also believe that it is a tribute to the faith which Indian people must have in human beings, because here I am a stranger to you personally, and am received with hospitality by Col. Banerjee as though I were his brother and then I find in addition to this, gentlemen, men like yourselves who are taking away this time from your families on the only day you have to spend with them coming to hear someone you have never heard of before speak, and I sincerely hope that what I will tell you this evening will compensate for the effort made

Now we come to the subject of Cancer. Cancer is the greatest problem of modern times; it is not the great medical problem, nor the greatest therapeutic problem, but it is the greatest problem of modern times. It is a subject which seems to belong to medicine, because medicine has the facility with which to relieve suffering; it seems to belong to pathology, because through pathology we recognise its different expressions; it seems to belong to chemistry, because through chemistry we understand about nutrition; it seems to belong to physics, because through physics we understand how the solutions of proteins develop into protoplasm, but it belongs to far more than all this. The cancer problem is a problem of biology. It is not a problem that can be solved by anyone branch of science, and likewise it is not a disease that can be handled by any single specialty. These few opening remarks are to impress upon you the conviction that I have, that unless there is co-operation between the different specialists engaged in cancer treatment, one cannot go very far because

there is needed the co-operation of the pathologists, physicists, radiologists, surgeons and physicians to adequately combat any single cancer problem.

Now what is the status at the present time of the cancer problem? Cancer ranks third as the cause of death in America. It is superseded only by heart disease and pneumonia. What is responsible for this? As medical science reduces infant mortality, as infection is controlled and the toll of epidemic diseases is being reduced, human beings live longer and as they pass the fifth decade, they become liable to cancer.

Cancer may be due to wrong diet or any of the various things which humans may do but it arises when that individual has reached a period in life wherein certain changes begin to take place. Conditions which give rise to cancer are usually present after 45 years of age. What those conditions are we do not know exactly but we are beginning to learn. The incidence of cancer follows step by step with the increase in the span of life.

The last point is, that there is sufficient evidence at hand to state that many cases of cancer can be cured but what is more important is that all cases can be relieved and life prolonged by early diagnosis and adequate treatment.

The progress towards the cancer problem can be divided into progress as to cause and progress as to treatment. What is the progress made in the cause? Progress as to cause has to offer what seems to be a most interesting thing in cancer research, namely the discovery of cancer producing compounds. It was observed by some that chimney sweeps suffered from cancer of the scrotum more often than other men. This observation was not taken advantage of until early in the 20th century some workers began to paint the ears of rabbits with solutions of tar but were unsuccessful until 1918 two Japanese painted some rabbits' ears for a long period and produced cancer. Now following this work an English physician classified tars into those which produce cancer and tars which do not and found that those manufactured at very high temperature produced cancer and low heat ones did not. We heard nothing further until in about 1925 British workers subjected a solution of these tars to a spectroscopical analysis and found that in an ultra-violet region there was a characteristic spectroscopic band in nearly everyone of the cancer producing tars. Later followed a prediction that there was a chemical compound in the same region which could produce cancer, yet this compound was not in existence. A short time afterwards this compound was made and is known as 1, 2, 5, 6 dibenzanthracene. Following this a huge amount of pitch was treated extracted from this was a very small amount of benz pyrene which turned out to be the constituent in the tar that produces cancer. Benz pyrene is related to dibenzanthracene, and indeed the most phenomenal thing of all, is that cholesterol a body compound and these two substances are related in chemical formula and what is even more to the point certain body substance cholic and dioxycholic acids when subjected to decomposition produce a compound that is far more carcenogenic than these. (Cook; Nature. Nov., 1935).

When the speaker was a student he was taught that cancer was composed of normal cells gone crazy. He does not think so now, because experiments seem to point to the fact that a cancer cell is not a normal cell gone crazy, but rather a cell which always had cancer possibilities and that cancerous growth are made up of the daughters of this cancer cell parent. In many ways theories of cancer cause are going back again to that of cell nests, excepting that we can now induce or bring out the cancerous possibilities in cells by means of these compounds mentioned above. It is barely possible that research in cancer cause may not be of any help in cancer treatment very much as when tubercle bacillus was discovered, it did not help in the treatment but in prevention.

Physicians have known for a long time that certain forms of cancer came from certain habits and kinds of employment as workers in the benzol compounds. Another instance is that the holding of betel nut wads may produce cancer of the cheek or lip. These facts help to prevent cancer. What can we say about cancer treatment? Cancer treatment is not as interesting. In the first place in spite of our knowledge of surgery the enormous experience with x-ray and radium, various chemicals like lead, etc., surgical diathermy, heat, it is noted that death-rate from cancer steadily rises. Furthermore, it can be said that there is nothing in the horizon, none even in the distant horizon that shows that there will be any other form of cancer treatment except the actual removal of each and every cancer cell colony. There is absolutely no evidence that by removing 99/100 of the cancer cell content of a body, that the case will get well, because the other, the one hundred will be absorbed, and on that point I made a survey of all

the better known professors of pathology and institutes of learning in the United States in 1933 and every man reported that in his experience he had never seen a case of cancer regress under partial destruction.

Now perhaps it is a good place here to repeat that the cancer cell itself is a very weak thing. In fact the treatment of x-ray and radium is dependent upon the lack of vitality in cancer cell as compared to normal cell. The only reason that cancer is so tenacious and persistent is because we have not adopted any technique which removes every single colony. So that the problem of cancer treatment still remains a problem of eradication or destruction. What hope is there of the methods which are being used to destroy cancer or remove cancer. We have first of all surgery, but surgery can only make an outstanding contribution by improvement of technique where it will be possible to surgically attack a heretofore inoperable area.

There are some possibilities in the use of heat. In the laboratories of the Frank H. Boyer Foundation in 1932 it was demonstrated that the efficiency of heat in killing certain cancer cells is greater than x-ray and radium. But heat cannot be used because there is no direct way of applying the heat to the tumour itself. When the method by which heat can be directed in the same manner as are directed x-rays or Radium, at least a new measure will be available for cancer treatment.

The discussion on the use of x-ray and radium can be summed up in a few sentences. Experiments with very highest voltage tubes operating at 750,000 volts seemed to show that such energy is useful in the relief of certain deep-seated as well as resistant growths. Whether such tubes offer any great practical advantage over the average deep therapy equipment is still a matter of debate.

In Europe and America the use of radon seeds is becoming more and more widespread, and if in any locality where the amount of radium is small radon seeds could be made, the usefulness of radium would be very greatly increased. There has been a complete change in the opinion as to voltage for treatment and it seems that low voltages of 50,000 or 60,000 are sufficient for certain forms of cancer located within easy reach of the apparatus.

In summarising the progress made in cancer, first, the discovery of cancer producing compound ranks as the most important new thing; second, the gradual increase in the use of x-ray and radium in the treament of cancer; third, much more efficiency can be obtained from small amounts of radium scattered in widely separated localities, if it is collected and radon seeds are used wherever suitable; fourth, there is a gradual shifting of opinion in favour of lower voltage applications for certain tumours; fifth, it is of utmost importance to emphasise that cancer in a disease which cannot be handled to the best advantage by a single specialty, and that all studies directed to cancer both as to cause and treatment should be co-operative in type to include all branches of science which may be of help in the problem.

In reply to a question by Dr. Bose about the use of snake venom in the treatment of cancer, which he said was used successfully by certain person in several cases, Dr. Pollia said:—

I have heard about snake venom being used in cancer, and it is my impression that it was repeated on animals and was not successful.

Replying to a question by another Doctor about the dissemination of knowledge for the prevention of cancer amongst the public and amongst the general practitioners who first come in contact with these patients, Dr. Pollia said:—

I have found but little effort made in any of the countries which I visited so far towards the dissemination of knowledge among the profession and among the laity. In America there is a Society called the Society for the Prevention of Cancer. After the Society for the Prevention and Control of Cancer was established, the public had not been violently conscious of its presence until three years ago they began to post bill boards throughout the large cities such as "A lump in the breast is dangerous," and so on. There was no great effort made to educate the medical profession, even in America, as there physicians are beginning to realize only recently, the magnitude of the cancer problem. In California a very interesting thing was done last year: they divided all the types of cancer. A committee who had great experience in this particular type of cancer wrote up a synopsis of the diagnostic points and treatment. This particular resume was handed to other cancer experts who certified to the accuracy of these points, and when this was done all of them were published in a small pamphlet form and distributed to the members of the Californian Medical Association, so that I believe the Californian physicians as a group have more useful information about cancer at their disposal than is customary. I might take this opportunity of

telling you that in my experience a very useful guide for the early detection of cancer *is the occurrence of any symptom for the first time after 35 years of age.*

Mr. P. Ghosh then asked a question about the average life of cancer sufferer in America. In Great Britain, he said, in 1934 they gave the average life of a cancer sufferer as three years, and in America, as the speaker remarked, the average life was about five years for every three cases. What was the longevity for cancer cases in the United States?

Dr. Pollia in reply said:—

The figures which were given probably represent the last few years and they show an increase from about nine months, to within three years and a half, and some cases of cancer, like the epithelioma were 100 per cent. curable in America.

Dr. Ghosh then asked what the value of rat serum was for cure of cancer.

Dr. Pollia replying said:—

Rat Serum acts as a foreign protein. Rat Serum being a foreign protein may cure a special case but it could not be recommended as a general treatment unless the same tumor could be treated with it in a large number of cases.

Dr. Mitter asked why radon was preferred to radium for cancer rays, and what was the utility of radon.

Dr. Pollia said that radon permitted greater distribution of radium energy since several or many seeds could be implanted in a tumour at any depth or area.

* * * *

A paper on " The possibilities of Serum Treatment in Smallpox " was read by Dr. Santosh Kumar De, B.Sc., M.B., at the Association Hall, on Saturday, the 28th March, 1936, at 7 p.m. The meeting was fairly attended, particularly in view of the fact that the city was in the grip of an epidemic of smallpox. Many members took part in the lively discussion that followed.

* * * *

A course of Post-graduate Extension Lectures on Radiology was arranged before the Easter Holidays under the auspices of the Association. It consisted of a series of eight lectures commencing on the 30th March, 1936. The lectures, it will appear from the programme, covered the whole field of Radiology (excluding therapy) within a short compass and it goes to the credit of the branch that the lectures proved so popular amongst the members of the medical fraternity.

Tea was served to members and guests before the lectures commenced.

PROGRAMME OF LECTURES

Dr. D. N. Banerjee, M.B. (Cal.), M.D. (Berlin),—History and Development of Radiology in the last forty years on 30th March, 1936, at 7 p.m.

Dr. G. Galstaun, M.A., D.M.R.E. (Cantab.), M.R.C.S., L.R.C.P.,—Radiology of the Œsophagus Stomach and Duodenum on 31st March, 1936, at 7 p.m.

Capt. R. P. Banerjee, M.B.—Radiology of the Intestinal Tract on 2nd April, 1936, at 7 p.m.

Capt. P. B. Mukherjee, B.Sc., M.B., F.R.C.S. (Edin.), D.M.R.E. (Cantab.),—Radiology of Pulmonary Tuberculosis on 4th April, 1936, at 7 p.m.

Lt.-Col. J. A. Shorten, B.A., M.B., M.R.C.P. (Lond.), I.M.S.,—Radiology of the Cardio-vascular system on 6th April, 1936, at 7-30 p.m.

Capt. M. Mukherjee, M.B. (Cal.), D.M.R.E. (Cantab.),—Radiology of the Gall Bladder and the Urogenital system on 7th April, 1936, at 7-30 p.m.

Dr. K. B. Ghosh, M.B., D.M., D.M.R.E.,—Radiology of Pulmonary Diseases other than Tuberculosis on 8th April, 1936, at 7 p.m.

Dr. N. G. Moitra, M.D. (Berlin), M.D. (Rome), D.M.R.E. (Cantab.),—Radiology of Bones and Joints on 9th April, 1936, at 7 p.m.

BENARES BRANCH

The following is a list of office-bearers and representatives to the Central and Provincial Councils of the Benares Medical Association, from 1st January to 30th September, 1936:—

OFFICE-BEARERS

President—Capt. S. K. Chaudhuri, M.B.E., B.A., M.B.

Vice-Presidents—Dr. B. Thungamma, F.R.C.S.E., R.S. Capt. A. P. Misir, I.M.D. (Retd.).

Secretaries—Dr. M. A. Nomani, M.B.B.S., and Dr. Bholanath, M.B.B.S.

Members of the Council—Dr. S. Lahiri, M.B., Dr. Murari Lal, L.M.P., and Dr. S. N. Mukherjee, M.B.

Librarian—Dr. Ram Kishore, M.B.B.S.

Representatives to the Central Council—Dr. B. Thungamma, F.R.C.S.E., Capt. S. K. Chaudhury, M.B.E., B.A., M.B.

Representatives to the Provincial Council—R.S. Capt. A. P. Misir, I.M.D. (Retd.), Dr. S. Lahiri, M.B., Dr. M. A. Nomani, M.B.B.S.

15TH ANNUAL REPORT

MR. PRESIDENT AND FELLOW MEMBERS,

We have the honour to present before you the 15th Annual Report of the Association for the year 1935 together with the accounts and the budget for next year.

It is with a sense of pride that we find our Association growing, along with age, in popularity and influence both amongst the public and the official. This is nothing but the result of our selfless public and social services. It is no doubt in large measures due to the splendid team work and co-operation of the members of the Association that made the work go easier, for which we are much grateful to you all.

The Office-bearers for the year 1935 were:—

President—Capt. S. K. Chaudury, B.A., M.B., M.B.E.

Vice-Presidents—Dr. G. S. K. Iyer, M.B., D.P.H. (Edin.), Capt. A. P. Misra, I.M.D. (Retd.).

Secretaries—Dr. M. A. Nomani, M.B.B.S., Dr. Bholanath, M.B.B.S.

Members of the Council—R. B. Dr. B. B. Banerjee, C.S. (Retd.), Dr. S. Lahiri, M.B., Dr. Murari Lal, L.M.P.

Auditor—Dr. S. N. Mukherjee, M.B.

Librarian—Dr. H. S. Mukherjee, S.A.S.

Members of the Library Sub-Committee—Dr. K. P. Tiwari, M.B.B.S., Dr. B. Thungamma, F.R.C.S.E., Dr. G. P. Das Gupta, M.B., Dr. B. C. Sen, L.M.P., R. S. Dr. A. N. Das, M.B.B.S., D.P.H. &c., Dr. P. D. Roy, M.B.

Registrar of scientific transaction—Dr. I. B. Adarkar, M.B.B.S., D.L.O.

Representatives on Central Committee of I. M. A.—Capt. S. K. Chaudhury, Dr. B. Thungamma.

Representatives on Provincial Council Committee—Dr. S. Lahiri, M.B., Dr. M. A. Nomani M.B.B.S., Dr. B. Bhattacharyya, L.M.F.

Members:

Number of members on 1st January, 1935 (Local 57, Mofussil 4(total 61 as against 64 in the beginning of the previous year.

Enrolled during the year 9 as against 7 of last year.

Resignations during the year 1 as against 4 of last year.

Struck off for non-payment 5 as against 7 of last year.

Death 1 as against 1 of last year.

Total number of members at the end of the year 1935 was 63 as against 61. Once again we record an increase of 2 members over the last year. It is satisfactory to note that there is a negligible minority of the qualified medical practitioners in Benares that is not a member of the Association.

Meetings:

Council meeting 12 as against 12 of last year.

Ordinary meeting 13 as against 12 of last year.

Social meeting 6 as against 1 of last year.

Special meeting 2 as against 3 of last year.

Sub-Committee meeting 5 as against 4 of last year.

Library Sub-Committee meeting 1 as against 1 of last year.

Public Sub-Committee meeting 3 as against nil of last year.

Total meetings 42 as against 33 of last year.

It is impossible to enumerate all the resolutions of last year in this Branch's report but a few important ones were:

The change in the financial year from January to December as at present to October—September. This was necessitated by our becoming a member of the Indian Medical Association, which body for consideration of various reasons fixed its financial year from October to September.

The separation of Anti-tuberculosis Propaganda work account from the main body account.

The other resolutions were carried out as promptly as possible. We are specially fortunate to have enjoyed half a dozen social functions. This, I must acknowledge was in a large measure due to the fullest and undenying help of the senior few of us. This deserved a special and detailed mention and I would have done it gladly mentioning names if I were not sure of offending these selfless helpers. Once again I thank them on behalf of the members in general and secretaries in particular to whom they were the main support.

In these At Homes we had the occasion to meet persons like Mr. A. R. Mehta, Mrs. How Martin, Col. Bhola Nauth, Dr. Mirajkar and Prof. Turner. This year again as a special feature we had three meetings for the benefit of the public, in Town Hall. They were in connection with health propaganda meeting addressed by Dr. A. R. Mehta, Dr. Tarlochan Singh, and Mrs. Margaret Sanger, the last two were accompanied with cinema film shows.

Finance:

It is gratifying to note that in spite of expenses incurred by this Association in public health propaganda work, such as Beri-Beri, Birth Control, etc., which were special features of this year, the Association was enriched by certain addition to its previous balance.

Opening balence 1st January, 1935 Rs. 2645 2as. 3p.

Income during the year Rs. 1181 1a. 8p.

Closing balance 31st December, 1935 Rs. 2665 15as. 11p.

Amount written off for non-payment of subscription Rs. 38 12as. 0p. as against Rs. 59 4as. 0p.

Arrears of subscription on the date of closing the year Rs. 115-0-0 as against Rs. 82-12-0 in the previous year.

Staff:

There are one part-time clerk and a whole-time peon. The work of the clerk and the peon is satisfactory and both of them are active and faithful.

Library:

The Library Sub-Committee held one meeting in this year. Number of books issued 162 as against 118 of the last year. Number of periodicals issued 83 as against 74 of the last year. New books added were 22. Periodicals subscribed 5.

Our best thanks go to Dr. P. C. Rakhit, M.B., who presented 10 books and Dr. Hari Sadhon Mukherjee, who presented six books and Mrs. How Martin who presented one book through Capt. S. K. Chaudhuri. This year we spent more than Rs. 50/- in excess for the library account than last year, and taking the consensus opinion we decided to spend greater amount on journals than on books.

The circulation of journals and books have not been to our entire satisfaction, but it is a pity we could not help much because of the poor staff. As a special facility we had ordered the clerk to issue books on requisition-slip by members, wherever possible but that too was not of much avail and we hope to do better in the next year.

Papers read:

We had three papers read and a few case-note discussions this year. In this connection I might record our disappointment at the non-fulfilment of our repeated request to increase our activities more on the clinical side than hitherto. After all this is our main object and we have to live up to it any way.

The Kala-Azar Dispensary:

The Kala-Azar Dispensary did very good work under Dr. P. D. Roy, M.B.

New cases: Kala-azar 22, Filaria 30; Total cases 52. Total number of Kala-azar 370, Filaria 321. Total 691 patients attended.

Nurses and Compounders' Training Class:

This year too as usual we had a good rush for admission for Compounders and Nurses' training. It is to be noted here that by a resolution we closed the admission of nurses in our training class, which in due course of 2 years will automatically be closed. This was necessitated by the poor materials that we were getting for the same over and above the difficulties in proper training. If condition turns favourable we hope to re-open the same class in a near future.

As for the compounders and male nurses the demand is still greater, so much so that we had to refuse some of the requests to supply training compounders. It is praiseworthy that our Association attracts students even from outside Benares. We hope in the near future to get it recognized by the Government. Nine compounders and two nurses were admitted this year, 2 compounders passed their final examinations.

Last but not the least we thank the teachers who incurred great inconvenience, even at the expense of their valuable time, to make it a success.

Anti-tuberculosis propaganda

There has been great activity in the antituberculosis propaganda work, and the Red Cross gave us Rs. 250/- more towards the fund. We are sorry to note that we are no nearer to our goal of making this a permanent and self-supporting scheme.

Red Cross

Dr. B. K. Banerji represented this Association at the local Red Cross.

Poison Drugs Act

The recent amendment to the Poison Drugs Act was a direct insult to the medical profession and as if to add insult to injury the U. P. Medical Association's deputation was refused an interview even by His Excellency the present Governor, and this grieved us much, but thanks to persistent propaganda of the profession in general and some members in particular, we have a very good chance of settling the whole affair in the near future.

Building

The absence of the Association's own building was a disquietening fact, and it was still more acutely felt when we were rather forced to hold our annual Dinner in the open, of course, under a *shamiana*. But it was an auspicious night when the embryonic foundation for the Association's building was actually laid. The very helplessness of ours under the *shamiana* awakened every member of our Association to the absolute necessity of a house and it was at the heat of the moment that about Rs. 700/- were subscribed on the spot.

Contributions

We were specially burdened this year by subscriptions to various charities and we congratulate ourselves to have got such splendid and ready response. In this connection we are specially to mention that we subscribed more than Rs. 80/- or so to a poor doctor not known to most, particularly when he was not one of family, thereby giving proof of our cosmopolitan nature.

Conveyance

This year the police decided to issue parking permits to cars of even non-medical men also and after a good deal of correspondence it was extended to other conveyances than car also of doctor. We expect a good deal more of fight to get the right of every member recognized irrespective of their possessing conveyances of their own or not.

It is with a deep sense of sorrow that we record the death of Dr. B. C. Sanyal, one of our foundation members and Dr. Suraj Pershad, our late member.

Acknowledgments

It is with a sense of pride that we record our deep gratefulness to the members in general and the office-associates in particular, for the undenying and ready help that they gave without which the work would have suffered greatly.

In conclusion, ladies and gentlemen, I would like to point out that the year was one full of activity and specially successful and auspicious because the nucleus of the building was formed. We would request you, Mr. President and fellow members, not to relax the zeal in future until and unless we attain our main object *i.e.* the building, as some of the sister associations have got. You will feel elated to hear that this province was specially mentioned in the Annual Report of the Indian Medical Association and the Benares Medical Association received one of the best tributes from the Provincial Conference.

Once again thanking every one we say good-bye and retire after wishing the next year further success.

M. A. NOMANI,
BHOLANATH,
Secretaries.

THE TINNEVELLY DISTRICT MEDICAL ASSOCIATION, PALAMCOTTAH

By the kind invitation of Dr. I. M. Orr, M.D., C.H.B., F.R.C.S. (Edin.), the Tinnevelly District Medical Association held its monthly meeting at Neyyur, on Saturday, the 21st March, 1936. Members numbering forty-five including two lady doctors were present on the occasion. The members were treated to demonstrations in the Operation Theatre by Dr. I. M. Orr, from 9 a.m. to 1 p.m. The following interesting operations were demonstrated on the occasion:—

1. Bonegraft for the spine.
2. Transplantation of Ureter.
3. Gastrectomy for Duodenal Ulcer.
4. Cancer of the Lower Jaw.

The technique of these operations was shown clearly and explained to the visitors. There was lunch at 1-30 p.m.

About twenty members attended the Leper Asylum where lecture demonstration on Leprosy diagnosis and treatment by Dr. Abraham, in charge of the Leper Hospital, was given. The rest of the members attended the clinical demonstrations in the wards by Dr. I. M. Orr. Tea was served to the members in Dr. Somervell's Bungalow at 4-30 p.m.

The meeting began at 5 p.m. under the presidentship of Lieut-Col. T. S. Shastry, I.M.S. Dr. Noble of the Salvation Army Hospital read a very informing paper on "Glaucoma". Dr. I. M. Orr, M.D., delivered an interesting lecture on the Ætiology, Pathology and Surgery of Peptic Ulcer.

Lieut.-Col. T. S. Shastry, I.M.S., brought the meeting to a close by his remarks on the subjects of the learned addresses; and proposed a vote of thanks to Dr. I. M. Orr, and his staff for the excellent demonstrations in the wards and in the Theatre and for their splendid hospitality, in a very inspiring speech. Cheers all round brought the grand meeting to a close at 6-30 P.M.

K. Rama Ayyar.
Secretary & Treasurer.

MEDICAL ASSOCIATIONS, SOCIETIES ETC.

Medical Associations, Societies, Unions, etc., are invited to make use of this section of the Journal.—EDITOR.

BOMBAY LEGISLATIVE COUNCIL

Medical Grant

The Home Member made a demand of Rs. 10,000 for Medical Reserved.

Mr. L. R. Gokhale (Poona) moved that the demand be reduced by Rs. 100. He did not see the necessity for the provision.

Dr. M. K. Dixit (Surat), in supporting the cut, observed that though the registration of medical practitioners was not compulsory, the fact remained that those who got themselves registered had to observe the rules of the Medical Council. Medical graduates therefore saw no particular advantage in registration. It had been stated that a certificate issued by a registered practitioner was accepted by Government and in Courts, but that privilege was not allowed to be exercised sometimes as some officers wanted the certificates to be counter-signed by civil surgeons. Private medical practitioners naturally resented this.

Dr. Dixit pointed out that in Baroda a register of Ayurvedic and Unani practitioners was kept. Likewise, it might be possible to keep a register of such practitioners in the Bombay Presidency. The register might be different from the present Medical Register.

Dr. B. G. Vad (Bombay University), supporting the cut motion, said looking at the question from the public point of view, he would urge Government to register persons practising Unani or Ayurvedic systems of medicine in the same way as Allopathic practitioners. There should also be a minimum qualification for those who practise these systems of medicine. If Government did this, it would be a real service to the public—a service which was overdue.

Bombay Medical Council

Referring to the Bombay Medical Council, he said it had not given protection to the practitioners on its register against unregistered foreigners who were competing with them. While Indian doctors with Indian qualifications were not allowed to practise in other countries, it was odd that nationals of those countries were allowed to practise in India. He urged Government to see that reciprocity was observed in this respect between India and other countries. He objected to the appointment as president of the Medical Council of officers who were ignorant of the conditions in the Presidency. It was high time that the Council had the right to elect its own president.

Dr. M. D. Gilder (Bombay city) supported the cut. He criticised the present system of having two different medical standards and pleaded for a single unitary system of medical qualification. He also took objection to the practice of voting by proxy in the Nursing Council.

The Home Member, replying to the debate, answered the various points raised by the members. He said the registration of medical practitioners was more for the protection of patients than of the doctors themselves.

With regard to reciprocity in the profession between India and other countries, the Home Member said a large number of Indian practitioners were allowed to practise in Britain. In return, the Indian Medical Act allowed registered practitioners of Britain to practise in India.

So far as the practice of medicine by unregistered practitioners was concerned, it was a big problem, and even a country like Britain had not been able to solve it. There was bound to be a certain number of this class of medical men, especially when the number of registered practitioners was short of the requirements of the population. The alternative was to recognise other systems of medicine. But that was a question which could better be discussed in a resolution.

With regard to the question of voting by proxy in the Nursing Council, the Home Member said it would be better to raise that question in the Nursing Council itself.

The cut motion was then put to the House and declared lost.

Medical Demand

Sir Shah Nawaz Bhutto, the Minister for Local Self-Government, then made a demand for Rs. 37,20,000 under the head Medical (Transferred).

Dr. M. D. Gilder (Bombay city) moved a cut of Rs. 72,500 under the item "Medical Establishment Superintendence." Dr. Gilder said the object of his motion was to abolish the establishment of the Surgeon-General. The Government of India Act of 1919 contained certain safeguards regarding the appointment of the Surgeon-General. In 1928 the Secretary of State for India on the advice of the British Medical Council, insisted that the head of the administration in medical service should be an officer of the I. M. S. Later on, the post of the Surgeon-General was also reserved for the I. M. S. and his appointment was, to all purposes, left to the Government of India. This had taken away the right of the Local Government.

Dr. Gilder thought that the Secretary of State ought to have consulted the Bombay Government before making the change and he wanted to know what the views of the Bombay Government were on the question.

Proceeding, the doctor said five years ago Government had appointed a venereologist to fight venereal disease but no result had been achieved except that a large amount of money had been spent. The speaker also criticised the appointment of I. M. S. officers in local hospitals in preference to members of the Provincial Service.

Competitive Examination

Dr. Vad, in supporting the cut, said that the time had arrived for instituting a competitive examination for entrants to the Indian Medical Service. Indian members of the Indian Medical Service required sympathy. They were not chosen by Government for the post of Surgeon-General and at the same time they were looked upon with suspicion by other members of the medical profession. There was no reason why the claims of Indians who had shown their capacity in the Great War and afterwards should be overlooked for the post of surgeon-general. Ordinarily, the occupants of the offices of the Surgeon-General and Personal Assistant to the Surgeon-General were out of touch with the requirements of the profession in the Presidency they served.

Dr. Dixit asked why the Minister for Local Self-Government should not be allowed to select a Surgeon-General from the Presidency. On the other hand the appointment was made virtually by the Director of the Indian Medical Service. It was time that the control of the Secretary of State for India in the matter was taken away.

Dr. Dixit observed that there was no reason for continuing the post of Lay Secretary to Government Hospitals in Bombay any longer when the office of the Surgeon-General had been shifted from Poona to Bombay and when the Surgeon-General was now in immediate contact with the hospitals in the city.

The Minister for Local Self-Government, in reply to the debate, said, the impression that the Bombay Government had surrendered their privilege of appointing their own Surgeon-General was not correct. Till 1928, preference was given to members of the Service in the Presidency. But in 1928, the Government of India wanted the appointment to be made by them so that the claims of senior officers in all the provinces might not be overlooked.

Central Government & Provincial Relations

Thereupon, the Government of Bombay pointed out in reply that the Medical Department was a transferred one and the privilege should not be taken away from the Provincial Government. It should continue to be exercised by the Governor in consultation with the Minister in charge. The Secretary of State, however, did not agree with the Bombay Government.

The Government of India then suggested to the Local Government that three names would be suggested to them (the Local Government) and it would be for the Local Government to express their view about them. At the same time, the decision was to rest with the Government of India. In the circumstances, it would be seen that the Government of Bombay had not surrendered the right. On the other hand, it might be stated that the Secretary of State had power, under the Devolution Rules, to have his say.

The Minister then pointed out that when the post of the Personal Assistant to the Surgeon-General was held by a member of the Bombay Medical Service representations were made to Government that it should be restored to a member of the I. M. S.

With regard to the post of Lay Secretary of Government Hospitals in Bombay, the Minister observed that the present incumbent was on contract till 1937. When the period of contract was over, it would be open for Government to review the position. Meanwhile, it might be of interest for the House to note that the Surgeon-General had already been doing his best to avoid any unnecessary expenditure.

Position Under Reforms

Dr. Gilder asked the Minister whether he would see that the views of the House on the question of the appointment of the Surgeon-General were conveyed to the Government of India.

The Minister replied that it was difficult to say what the position would be under the Reforms. However, Government would consider the suggestion.

The cut motion was then withdrawn.

Dr. Dixit raised the question of opening an out-patient's department in St. George's Hospital. He said the Reorganisation Committee, which had been appointed by Government to go into the expenditure of the hospital had recommended the opening of an out-patient department. Government had not, however, given effect to that recommendation. The position was that several beds in the hospital were still empty.

Mr. J. B. Greaves (Bombay Chamber of Commerce) observed that there seemed to be a proposal for a separate building for the out-patient department although one felt apprehensive of the expenditure involved.

Mr. Greaves said the expenditure being incurred on hospital patients had been steadily going down. For instance, in 1933-34, the cost per patient was Rs. 7-6-0 while in the succeeding year it fell to Rs. 6-4. With regard to receipts, he said that they amounted to Rs. 2,29,000 in respect of all Government hospitals. Of that sum, over 100,000 came from St. George's Hospital alone.

European Patients

Mr. Greaves had no objection to the sending of patients affected by infectious diseases to the Infectious Diseases Hospital at Arthur Road and not keeping them in St. George's Hospital. There was provision there for such patients, attacked mostly by cholera and plague. The question was whether there would be sufficient accommodation in Arthur Road Hospital for European and Anglo-Indian patients.

Supporting the cut motion, Dr. Gilder said he did not understand why Anglo-Indians and Europeans could not be admitted into other hospitals. He had recently come across a case in which an Anglo-Indian woman was refused admission to the G. T. Hospital. Dr. Gilder also complained that the cost per patient in the St. George's Hospital was much higher than in other hospitals.

Sir Shah Nawaz Bhutto, replying to the debate, said Government were awaiting the report of the Surgeon-General on the question of opening an out-patients' department. Government would consider the question as soon as the report was received. With regard to the complaint that an Anglo-Indian woman was refused admission into the G. T. Hospital, he said that he was not aware of it. There was certainly no objection to such persons being admitted into any other hospitals.

On the explanation given by the Minister, Dr. Dixit withdrew his cut motion and the grant was made.

The Council then adjourned.

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Lt.-Col. A. Y. Dabholkar has been nominated a member of the Bombay Legislative Council in place of Mr. W. Grieve, resigned.

Grants under the Medical Department in the Budget for 1936-37 were made.

Mr. L. R. Gokhale (Poona City) moved a reduction of Rs. 100 in the demand of Rs. 6,23,900 provided for mofussil hospitals and dispensaries.

Mr. Gokhale's intention in moving the cut was to point out the disparity in the salaries paid to Indian and European nurses. The difference, he said, was in the proportion of three to one. There was a difference even in the *dhobi* allowance paid to Indian nurses and that paid to European and Anglo-Indian nurses.

Mr. Gokhale also wanted to know what steps had been taken to Indianise the nursing staff at Poona.

Dr. M. D. Gilder (Bombay City) said that while quarters were provided for European nurses no such provision was made for Indian nurses.

Dr. B. G. Vad (Bombay University) and Dr. M. K. Dixit (Surat) also supported the cut.

Sir Shah Nawaz Bhutto, Minister for Local Self-Government, in reply said that Government had done everything possible to carry out the wishes of the House in regard to the proportion of Indian and European nurses. They could not be expected to turn out all the European and Anglo-Indian nurses. Those that retired were replaced by Indian nurses.

As far as the Sasson Hospital at Poona was concerned the proportion of Indian staff nurses and probationers had been fixed at 60 per cent. and 70 per cent. respectively. It would be impracticable to do away entirely with European and Anglo-Indian nurses.

As regards the disparity in salary, the salary of Indian nurses in the Sassoon Hospital had been raised from Rs. 30 to Rs. 45, rising up to Rs. 60.

There was a Rs. 28,000 scheme to provide quarters for Indian nurses in Poona.

The motion for a cut was declared lost without a division.

Mr. Syed Munawar (nominated non-official) moved that the total voted demand under hospitals and dispensaries be cut by Rs. 100.

Mr. Munawar objected to the levy of one anna per head from out-patients and two annas per head from in-patients of J. J. Hospital and Sir Cowasji Jehangir Ophthalmic Hospital in Bombay city, particularly when the two hositpals had been made possible by benefactors after whom they were named and when they were known to be free hospitals.

Dr. J. A. Collaco (Bombay city) supported the cut. He said that it was only poor people who went to free hospitals and subjected themselves to the delay in treatment. It was, therefore, unwise not to charge such patients.

Dr. Vad said that in the districts doctors in charge of hospitals and dipensaries ought to go to villages and render medical aid leaving the dispensaries under the control of honorary practitioners. He suggested that quinine be distributed equally in all malaria-stricken districts.

Financial Stringency

The Minister for Local Self-Government, in reply, observed that in spite of his having become a Minister he had not changed his views on the question. At the same time, since he became Minister, he knew more facts than he had known when he made the speeches to which reference had been made. Unfortunately, owing to financial stringency, Government were not able to carry out all their intentions.

The Minister pointed out that it was primarily the duty of local bodies to run or open dispensaries and not wait till Government rendered financial assistance. He also stated that in the case of hospitals and dispensaries not under the administration of Government, discretion had been given to local bodies to levy fees from patients or not levy them. It was incorrect to say that fees were being levied from poor patients.

The Minister said that there were 147 dispensaries in urban areas where the discretion to levy fees was vested in local bodies. Likewise, there were 109 dispensaries in rural areas. Government dispensaries numbered four in rural areas and 46 in urban areas. Out of the four rural dispensaries, fees were being charged in two. In the 46 urban dispensaries, fees were being levied. Nevertheless, the poor were exempted.

The Minister observed that a scheme to consider who should be charged and who should be exempted was under consideration.

Mr. Munawar's cut motion was then put. On the strength of voices, the President, Sir Ali Mahomed Khan Dehlavi, declared " The Ayes have it."

The Minister challenged a division which resulted in the motion being rejected, 41 voting for and 26 against.

In announcing the result, the President turned to the Opposition benches and remarked that this was the second time during the second session that the result of the division was contrary to what the strength of voices indicated. He said that, according to tradition, those who did not wish to take part in the voting should not shout.

Dr. Vad moved that the total demand of Rs. 297,000 provided for medical colleges be reduced by Rs. 100. Dr. Vad pointed out that an advertisement had been published on March 5 giving only ten days for applications to be received for the post of Professor of Pharmacology in Grant Medical College. Ten days' time, he said, was inadequate for getting the most competent man.

Dr. Dixit and Dr. V. G. Vaishampayan (Sholapur) supported the cut.

The Minister for Local Self-Government denied that Government had anybody in view while advertising for the post. For candidates coming from Bombay city, he did not think that ten days' time was inadequate. Besides, the present incumbent was already under extension, and was due to retire in April. The Minister also pointed out that it was doubtful whether a fulltime person would be available for the post.

The motion for cut was lost.

Dr. Vaishampayan moved that the demand of Rs. 462,300 under mental hospitals be reduced by Rs. 1,000. He said that posts of house physicians who could watch mental diseases should be created in hospitals. In the mental hospitals, there was not accommodation sufficient for the persons admitted. The whole system required an overhaul.

Dr. Gilder did not think that the change of name from "lunatic asylums" to "mental hospitals" had not resulted in any change of outlook. Beyond the fact that the patients were given food and were looked after, they did not seem to be getting cured. The staff in the hospitals were both insufficient and inefficient. What was required was close and constant attention, which was not possible with the small staff now available.

Inadequate Grants

Mr. Tairsee said that he had seen the Yeravada Mental Hospital last year, and he was convinced that the grants given for the maintenance of the mental hospitals were quite inadequate. The Parsi community deserved a tribute for having contributed for a special ward in Yeravada Hospital, and one wished that other communities might follow suit. Mentally defective persons were those who were unable to help themselves, and consequently they should be the first charge on the tax-payer.

The Minister pointed out, in reply, that it was difficult to get specially trained men to be in charge of mental hospitals. With regards to house physicians and consultants, there was the difficulty of finding housing accommodation. With the additional grant of Rs. 1,74,000 proposed to be given, it would be possible to provide for 226 more beds. It was also expected to transfer criminal lunatics to the ordinary jail department. Thus there would be 100 beds available. Again, with the donation of Sir Jehangir Bomon-Behram, it would be possible to provide for 41 more beds.

The motion for cut was withdrawn.

Medical Relief

Dr. Gilder raised the question of inadequate medical relief in asking that the total demand of Rs. 40,66,000 be reduced by Rs. 5,000. He said that there was only one dispensary for every 315 square miles or one dispensary for every 5,50,000 of the population. Was it adequate relief?

In Bombay city, half the number of patients obtaining medical relief came from outside the city. One could not understand why doctors could not be sent to the rural areas themselves instead of making the villagers run to the city.

Mr. Gangoli and Mr. A. N. Surve (Bombay city) supported the cut.

The House adjourned.

Encouragement to Indigenous Systems Urged

Rao Saheb P. D. Kulkarni (Poona District) supported the cut moved the previous day by Dr. M. G. Gilder (Bombay City) that the total demand of Government of Rs. 40,66,000 for the Medical Department be reduced by Rs. 5,000.

Mr. Kulkarni said that the provision made for rural medical relief was quite inadequate. The relief came to one-fourth anna in the rupee contributed by the tax-payer. In the sum of Rs. 40,66,000 provided for the department, as much as Rs. 1,93,000 was non-votable.

Proceeding, Mr. Kulkarni said that if medical aid was effectively to reach the rural areas, they would have to engage many more medical men than they did at present. What they wanted was not men of the Indian Medical Service, who, he thought, were a drain on the finances of the Department. They could have cheaper men.

Mr. Kulkarni did not see why Government had not been giving encouragement to the Unani and Ayurvedic systems of medicine, the efficacy of which had been admitted even by foreign authorities. Government, he suggested, should take steps to train young men in these systems of medicine, so that they could be sent out to rural areas. They would prove cheaper than the men turned out by the medical colleges. Moreover, the introduction of the Unani and Ayurvedic systems would diminish the annual drain of two crores of rupees on account of the import of foreign drugs.

Mr. R. G. Soman (Satara) supported the demand for the introduction of indigenous systems of medicine, and said that if Government wanted to make the village uplift scheme a success, their first duty should be to afford proper medical aid in the distant corners of the districts.

Plea for Leper Asylum

Continuing, Mr. Soman urged on Government the need for making inquiries in each district in order to find out the causes of the prevalence of leprosy. The speaker was informed that there were from 1,500 to 2,000 lepers in each district. Government should take immediate steps to provide asylums for lepers in every district.

In Surat, Mr. Soman said, there was an asylum, which, being in need of funds, applied to Government for a grant of Rs. 2,500, but got only Rs. 900 per annum. There were 169 patients in that asylum.

Urging the introduction of a system of subsidising medical practitioners in rural areas, Mr. Soman said that in 1925 Government had promised to introduce the system, but nothing had been done. Such a scheme was in operation in the Madras Presidency, and was calculated to encourage medical men to go out into rural areas.

Mr. Pestansha N. Vakil (Ahmedabad City) supported the cut. He regretted that Government had so managed that the Surgeon-General, who had been a member of the House the previous day, had been made to make room for another. If he had been present, he would have been able to know the views of expert members like Dr. Gilder on the administration of the Medical Department. For instance, complaints about inadeqate grants to local bodies for medical relief, non-payment of subsidy to medical practitioners to go out into rural areas and non-encouragement of honorary physicians and surgeons had been made. If the Surgeon-General had been present in the House, he would have been able not only to hear the views of non-official members, but also to give his own reply.

Government Criticised

Year after year, suggestions had been made by non-official members, particularly the members of the medical profession, for the improvement of the administration of the Department in general, and for the extension of rural medical relief. It seemed, however, that Government were slow to imbibe fresh ideas. One would like to know what happened to the scheme the late Minister for Local Self-Government Sir Rustom Vakil, had in view regarding the extension of rural medical relief.

Mr. T. S. Kennedy (Bombay City) urged the provision of money for starting and maintaining homes for mentally deficient children in the Presidency. In a report prepared by the Assistant Superintendent of the Ranchi Mental Hospital it was stated that there were 22,50,000 mentally deficient people in India, of whom 2,83,675 were children.

Mr. Kennedy pointed out that the plea of financial stringency should not be put forward by Government in the matter of providing accommodation for mentally deficient children, who required special attention.

Khan Bahadur Abdul Latif Hazrat Khan (Poona and Sholapur Cities) referred to a scheme of medical relief introduced by the Sholapur District Local Board, and said that although they had been providing relief in the rural areas, Government had not been paying them an adequate grant.

Cures in Mental Hospitals

Dr. J. A. D'Souza (Bombay City) said that the object of cut motions was to give opportunities to the House to offer criticism of a constructive nature; he felt that the remarks made by Dr. J. A. Collaco and Dr. M. D. Gilder on the previous day were far from being of that nature. Dr. Gilder had stated as regards mental hospitals that the patients were merely fed, and not given medical treatment. But, if he had cared to look into the administration report for 1933-34, he would have found that the percentage of cures in the five mental hospitals of the Presidency was 43·9. This figure compared favourably with the figures of asylums in Europe.

An attempt had been made to make out that the mental hospitals were in an awful condition. Such statements, Dr. D'Souza said, were not based on facts. Not only was adequate treatment given in the hospitals, but amenities for recreation such as free tickets for cinema shows, cricket, football and hockey were provided. The statement that the staff of the hospitals was inefficient and inadequate was not justified.

Progress for Relief Work

Speaking about medical relief generally, Dr. D'Souza said that during the last 15 or 20 years the Medical Department had made good progress in regard to the provision of medical relief in urban as well as rural areas. The speaker was as desirous as anyone else that there should be dispensaries for every few tenements, but that was no reason why one should depreciate, in a critical manner, what was already being done.

Sir Rafiuddin Ahmad (Central Division) was surprised to note that Dr. D'Souza should have remarked that members like Dr. Gilder and Dr. Collaco did not know the subjects on which they had been talking.

Dr. D'Souza intervened to say that he had only stated that some of their remarks were not based on a study of the reports.

Proceeding, Sir Rafiuddin stated that it was not possible to expect that non-official members would have access to the papers which were available to officials. Besides, non-official members were present in the House not to say " yes, yes " to what Government said, but to offer a criticism of the actions of

Government which required criticism. In that connection, one was inclined to endorse the remark of Dr. Collaco that the methods adopted by Government in the administration of the Department were wooden and antediluvian. It might be that Government had been doing their best. But, that " best " was bad, although it was recognized that the Minister was generally handicapped on account of his environment.

Dr. B. G. Vad (University) observed that it was rather strange that the Surgeon-General (Major-General E. W. C. Bradfield) who had come to the House and was about to occupy his seat, had to retire.

Continuing, Dr. Vad said that the policy of Government in regard to the administration of the Medical Department was one of drift. Beds in hospital were empty, and the money given by donors was spent mostly on buildings. The School of Dentistry of the J. J. Hospital group was yet to be started. There was also no provision yet for hostel accommodation for women students of Grant Medical College.

J. J. Hospital Post

Dr. Vad urged Government to consider whether it was necessary to continue the post of Lay Secretary of the J. J. group of hospitals, particularly when the office of the Surgeon-General had been transferred from Poona to Bombay. If it were found necessary to continue the post, the question was whether, in view of the state of unemployment rampant in the country, it was advisable to keep a person who already had a spell of service and who was getting a pension.

Mr. L. R. Gokhale (Poona City) supported the cut. He considered it strange that Dr. D'Souza should have come forward to say that much had been done in the matter of rural medical relief when Government had themselves admitted in the administration reports that the facilities provided were inadequate.

Home Member's Assurance

Home Member, Sir Robert Bell, made a brief statement in regard to the position of mentally deficient children, a subject which, he thought, was related more to the Education Department than to the Medical Department.

The Home Department was up against the problem in connection with the Children's Home at Umerkhadi, Bombay. Since the Bombay Children's Act was passed about ten years ago, boys and girls who had committed offences, or who were uncontrollable, were being dealt with in the Umerkhadi Home. At present, a considerable number of the juveniles in the Home were mentally defective.

At present, there was a scheme under consideration to have a home in Bombay for mentally defective children. Suitable accommodation would be found for them and education imparted by a person who had special qualifications. It would be possible under the scheme to improve the mental outlook of defective children. But those who were considered quite hopeless would necessarily have to be transferred to mental hospitals.

A beginning would be made in Bombay City, and if the scheme were found successful, it would be later put in operation in the districts.

Minister's Reply

Sir Shah Nawaz Khan Bhutto, the Minister for Local Self-Government, replying to the debate, prefaced his remarks by saying that he was grateful for the useful criticism of the Medical Department. He for one did dispute that it was not justified at all. It was very helpful.

The Minister apologised for the absence of the Surgeon-General in the House, and said the reason was that it had been expected that the discussion over grants to the Medical Department would end on the second day of the sitting.

Proceeding, Sir Shah Nawaz admitted that the system of providing medical aid in rural areas was not altogether perfect, but it had to be realised that the problem was a difficult one, and that Government had been trying their utmost to find a solution.

Government had some time ago appointed a committee of officials and non-officials to go into the question, and the committee, after a full inquiry, had recommended that Government should pay to the local authorities two-thirds of their total expenditure for medical relief. Owing to financial stringency, however, that proposal had to be dropped. The scheme providing a hospital for every 100 square miles, which the late Sir Rustom Vakil had intended to inaugurate, had also to be dropped for want of funds.

People residing in the mofussil who could not avail themselves of other facilities had, the Minister observed, a right to demand medical relief, but, as he had already pointed out, it was the primary duty

of the local authorities to provide such relief. Government would help them to the extent that finances permitted. The scheme introduced by the Sholapur District Local Board was costly, and therefore not feasible. The need of the vilages was provision for the treatment of ordinary ailments such as fever, sunstroke and dysentery, and it was no good investing money in costly machinery.

Satara's Novel Scheme

During his recent tour the Minister had noticed that in Satara a novel scheme was being tried. Primary school teachers were given a certain amount of training for treating ordinary ailments and were supplied with medicines. The Minister thought such a scheme, in the absence of a better one, would be quite useful.

The Minister did not want to dispute the statement that the 390 Government dispensaries formed a very inadequate number, but the question was of finding the money to start more dispensaries. If Government must pay for them, they would have to raise taxes. "It makes no difference," Sir Shah Nawaz added, "whether the people pay the taxes to Government or to the local authorities, but it is better that the local authorities should take the responsibility upon themselves, and levy taxes according to their requirements."

Rao Bahadur Bhimbhai Naik (Surat District): 'Which are the sources left for the local bodies?"

The Minister: "There is the professional tax."

Subsidies to Practitioners

Continuing his speech, Sir Shah Nawaz commended the system of District Local Boards paying subsidies to private medical practitioners in rural areas on certain conditions regarding scales of fees.

Khan Bahadur Abdul Latiff Hazrat Khan, inturrupting, said that the method had been tried in Sholapur District without any tangible result.

As regards the encouragement of indigenous systems of medicine, some time ago Government had decided to send 50 students to Delhi to take up a course in Unani medicine, but the scheme had to be given up for want of funds.

Dr. Gilder, in his reply, maintained that the statements made by him the previous day in regard to the inadequate facilities and insufficiency of staff in the mental hospitals were correct. They were based on information contained in Government administration reports. He withdrew the motion for the cut.

Public Health Grant: Cut Motion Withdrawn

The Minister for Local Self-Government then moved for a grant of Rs. 19,93,000 for the Public Health Department.

Dr. P. G. Solanki (Nominated Non-official) moved that the sum of Rs. 13,875 provided as grants to village sanitary committees be reduced by Rs. 500. He said that Rs. 6,192 had been provided for the Northern Division, Rs. 2,550 for the Central Division and Rs. 5,133 for the Southern Division. But very little was being done by the sanitary committees, so far as he was aware.

Mr. H. K. Kirpalani, Secretary to Government, General Department, observed in reply that the village committees were co-operating with the municipalities and local bodies in conservancy, lighting and water-supply arrangements. The committees were looking after the elementary requirements of the villagers and were doing very useful work, although the standard of administration varied from district to ditsrict.

Dr. Solanki, in withdrawing his motion, expressed the hope that the presidents of district local boards of Gujerat would see to it that the grants were well utilised by the village sanitary committees, and that villagers were provided with facilities.

The motion was allowed to be withdrawn.

Scheduled Classes

Dr. Solanki raised the question of water supply in villages for the scheduled classes particularly. He thought that Government had not done all they could to provide special wells for the scheduled classes nor had they urged local bodies to do their duty by those classes.

Rao Bahadur G. K. Chitale (Ahmednagar—Leader of the Opposition) suggested that a list should be presented year after year to the House of wells dug for the scheduled classes.

The Minister assured the House that Government had been doing their best to provide special water facilities to the scheduled classes. The local bodies had also been doing their best to see that those classes were afforded access to the common wells.

Dr. Solanki's motion was lost without a division.

Health Officers' Salary

Raq Bahadur L. V. Parulekar (Ratnagiri District) moved that the total demand of Rs. 1,02,500 provided for grants to local bodies in connection with the employment of health officers be reduced by Rs. 100. He complained that Government had stopped paying, for the last three years, grants to the Ratnagiri Municipality, for the pay of the health officer.

The Minister stated that Government had been pledged to contributing half the salary of a health officer and one-third the salary of a sanitary inspector employed by a municipality, provided that the officer was a qualified person. In the case of the Ratnagiri Municipality, the officer chosen was not one who satisfied the requirements laid down for the purposes of the grant.

The motion for cut was withdrawn.

The House then adjourned.

* * * *

Public Health Department's Administration Criticised

The House had before it a demand, made the previous day, by the Minister for Local Self-Government, Sir Shah Nawaz Bhutto, for Rs. 19,94,000 for Public Health, for 1936—37.

Mr. G. S. Gangoli (South Kanara) moved that the item of Rs. 51,900 relating to expenses in connection with epidemic diseases—malaria—be reduced by Rs. 100.

Mr. Gangoli observed that malaria had been claiming a heavy toll in his district year after year, and that the measures taken by the Department to combat it were absolutely inadequate. The Director of Public Health had visited the district more than once, and for this the people were grateful. At the same time, it was felt that the quantity of quinine supplied to the district was far too insufficient.

Minister's Reply

The Minister for Local Self-Government, in reply, said that deaths from malaria in the Kanara district were not so numerous as had been sought to be made out. The mover of the cut had attempted to show that Kanara had been neglected. On the other hand, Kanara was "one of the brightest spots in the Presidency." (Laughter). If possible continued the Minister, he proposed to spend the last days of his life in that district. (Renewed laughter).

The Minister then gave the percentage of deaths from malaria, compared with the attacks: Nasik, 7·94; West Khandesh, 3·54; Poona, 3·30; Dharwar, 3·24; Thana, 3·11; Kanara, 2·54. It would thus be seen that the incidence of deaths in Kanara was the lowest.

Proceeding, the Minister pointed out that every year four additional doctors were appointed for the Kanara district. Besides, the quantity of quinine supplied to Kanara was four times that supplied to any of the other districts. The Minister assured the House that Government would not hesitate to incur more expenditure than was shown in the Budget estimates, provided it was found necessary later on.

The motion for the cut was then withdrawn.

Haffkine Institute

Dr. J. A. Collaco (Bombay City) moved that the demand of Rs. 3,01,000 provided for the Haffkine Institute, Bombay, be reduced by Rs. 1,000. He pointed out that at present only one kind of vaccine was being prepared at the Institute. He suggested that various other kinds might be prepared.

Dr. M. D. Gilder (Bombay City) supporting the cut, stressed the need for a re-organisation of the Haffkine Institute. In the first place, he asked why the Institute should have two I.M.S. officers, when both the Secretary of State for India and the Government of India had stated that there would be only one I. M. S. officer there.

Dr. Gilder also desired that vaccine should be distributed free to the local bodies, in order to combat epidemics. One did not know why the price of vaccine had been raised. It looked as though Government were killing the goose that laid the golden eggs. After all, the Institute was to be a national concern, from which local bodies could easily obtain vaccine for preventing epidemics.

Plea for Research Work

Dr. B. G. Vad (University) thought that the Institute should be maintained as an institute for research. At present, for tropical diseases or malaria, people had to look to Western countries for treatment. The Haffkine Institute could continue research, both in theory and practice. After all, research could not be conducted according to a time-table.

Mr. H. K. Kirpalani, Secretary to Government, General Department, observed that if there was one institute which the Presidency ought to be proud of, it was the Haffkine Institute. Although it was meant to be a research institute, since it was started, its activities had grown. It supplied vaccine to local bodies not only in the Presidency, but also to those who require it in different parts of the country.

Mr. Kirpalani pointed out that experiments in the production of serum for plague were being carried on at the Institute.

The question of supplying vaccine at reduced rates was under consideration.

Dr. Collaco withdrew his cut motion.

Another Cut Motion: Methods Criticised

Dr. Gilder next moved that the entire demand under Public Health be reduced by Rs. 1,000.

Dr. Gilder complained that the measures adopted by the Department were not at all modern. In fact, the methods adopted in the last century were still in vogue. For instance, if there was an epidemic, it was left to local bodies to combat it. But, when local bodies had no money what was to happen? Was the epidemic to be allowed to spread, as had happened in the case of one taluka in Gujerat last year? After all, people looked to Government to take measures of prevention. Government could also make the malaria staff permanent.

Rao Saheb P. D. Kulkarni (Poona District) supported the cut. The rural areas, he said, were in a deplorable condition as far as sanitation was concerned, and the Public Health Department had made no progress towards their improvement. In Bombay Presidency, which prided itself on being a progressive presidency, the death rate had been advancing. In 1921 the death rate was 23·8 per thousand. The rate had gone on increasing, and in 1927 it was 25 per thousand; in 1930 it was 29. As against that, in Madras the death rate was a little over 25; in Bengal a little over 23; and in Assam it was 19.

Department Defended

Sir Rafiuddin Ahmad (Central Division) did not agree that the present state of affairs in the rural areas was due to the neglect of the Health Department. As one who had himself once held the portfolio, he knew what good work the Health Department was doing, and under what difficulties it was carrying on the work. It was the system that was at fault, and if anybody was at fault it was Government and the representatives of the people.

The question of public health was even more important than that of education, and Government alone could not do anything in the matter. He wished members who criticised the Department had made some practical suggestions which the Department could adopt.

Sardar Rao Bahadur Bhimbhai R. Naik (Surat District) said that public health was a national question, and should be tackled by Government themselves, instead of being left to local bodies.

Khan Bahadur Alibhai E. Patel (Northern Division) observed that neither Government nor the Local Boards had done anything in providing a water supply in his district.

Reduction of Death Rate

Major A. Y. Dabholkar, Director of Public Health, observed in reply that the death rate in the Presidency did not at all compare unfavourably with that in the other presidencies. It was true that there was further scope for improvement. But even countries like England and Australia were dissatisfied with the conditions of public health. At the same time, it was worthy of note that a considerable reduction had been brought about in the incidence of deaths due to epidemics. Occasionally, there might have been a rise, but on the whole, the rate had decreased.

Major Dabholkar then gave the figures for deaths from plague for the years when the epidemic was virulent in the Presidency. In 1917, the deaths numbered 1,62,000; in 1923, the deaths were 33,000; in 1933, when the epidemic was very virulent, the deaths numbered 24,500.

Deaths from cholera in 1912, 1919, 1927 and 1934 were: 54,500; 51,000; 26,000; and 11,000 respectively.

In regard to smallpox, the virulence of the epidemic had abated considerably.

Major Dabholkar informed the House that all possible measures were being adopted to prevent and combat epidemics and that there was no cause to be despondent.

Mr. A. N. Surve (Bombay City) supported the cut. He asked why rules had not been framed under the Bombay Prevention of Adulteration Act as amended last year. It was the duty of Government

to see that adulterated food products were not available in the markets.

Mr. Surve thought that Government were not justified in dropping the provision of Rs. 15,000 in the budget (provided in 1935-36) for the destruction of rats by cyno-gas.

Plantation of Cinchona: Checking Malaria

Dr. Vad stated that it should be the duty of Government to prevent, control and stop epidemics. In regard to malaria, they ought to see that sanitary conditions were maintained and that quinine was supplied in adequate quantities. In that connection, he suggested that Government should consider the plantation of cinchona.

Dr. Vad believed that the time had come for enforcing medical inspection of school students, a scheme which had been suspended for want of funds.

Dr. M. K. Dixit (Surat District) contended that measures adopted by the Department were most primitive. If the Department was administered on proper lines, there would be very little to be done by the Medical Department. For instance, malaria had not been properly checked.

Dr. Dixit complained that the total grant under Public Health had been reduced by Rs. 69,000, compared with that of 1935-36. Besides, the non-votable items had been increased, while the votable items had been reduced. One would like to ask, for example, why there should be two I. M. S. officers in the Public Health Department.

Dr. Dixit suggested to Government that they should enabled municipalities and local bodies to appoint part-time health officers practising in the districts. That system had been tried with success in England. He requested Government to see that patients in leper asylums were not allowed to move about from place to place, so that the spread of infection might be prevented.

Drainage in Surat

Dr. Dixit then referred to the lack of drainage facilities in Surat city.

The President, Sir Ali Mahomed Khan Dehlavi, desired to know how that was relevant to the question at issue.

Dr. Dixit replied that it was relevant to "Public Health Engineers."

The President remarked that he was also interested in the question raised. At the same time, he was unable to see the relevancy.

Dr. Dixit appealed to Government to do something in the matter of drainage in Surat city.

Dr. V. G. Vaishampayan (Sholapur City) suggested that anti-rabic vaccine be supplied free of cost to local bodies.

Mr. Gangoli further supported the cut.

Dr. Collaco urged that Government should enforce vaccination in the mofussil.

Dr. Gilder, replying to the debate, said that while on the one hand non-official members were told to provide specific instances in support of their statements, on the other, when they did quote instances, it was said that those instances were solitary ones, and no generalisations could be based on them.

Duty to Decide Policy

As regards Sir Rafiuddin Ahmad's remark that those who criticised should bring forward concrete suggestions, Dr. Gilder said it was for the Minister and his Department to decide on the policy. It was no good telling the House that local boards were responsible and for local board members to say that they had no funds. Something had got to be done. Government themselves had before them concrete proposals such as the establishment of flying medical parties and the continuance of the malaria staff, and he could do no more than suggest that Government should carry out those proposals. There was also a suggestion that part-time health officers should be appointed from among practitioners in the districts.

Sir Shah Nawaz Bhutto observed that some of the suggestions made during the discussion deserved serious consideration, but he wanted the House to realise what exactly were the duties of the Health Department. Its primary duty was to advise local bodies. It did not possess any executive function, except in cases where local authorities needed it. Government had tried their best to persuade District Local Boards to appoint their health officers, and it was a matter of regret that so far only two boards in the Presidency proper had done so.

Government and Local Bodies: Co-operation Needed

During epidemics it took eight to ten days for assistance to reach an affected spot because some time passed before the Director of Public Health was informed, and he in turn had to inform his assistants. Government were always prepared to supplement the funds of the local bodies, if it was found that their funds were insufficient. Unless there was more co-operation from the local boards, Government could not do more than they were at present doing.

The Minister denied that there was any reduction of the expenditure allotted to the department. While in former years full expenditure had been shown, now the receipts were deducted and only the net expenditure was shown.

The Minister assured the House that the rules under the Prevention of Adulteration Act had been drafted and that they will be put into operation shortly.

With regard to the drainage problems of Surat City the Minister observed that Government had been co-operating fully with the municipality. But the river Mandola, into which the municipality intended to discharge the water, passed through Baroda and Sachin States, the authorities of which naturally objected on the ground that the water would be undrinkable if the proposal of the Surat Municipality was accepted. Now, the Commissioner of the Northern Division had been requested to negotiate with the authorities of the two States, and a conference between the representatives of Government, the States and the Surat Municipality would be convened, at which the whole problem would be discussed, perhaps to the satisfaction of Surat.

I. M. S. Appointments

Mr. Kirpalani then replied to the question raised regarding the additional posts provided to officers of the Indian Medical Service in the Haffkine Institute in Bombay and the Public Health Department. It was true that in the Haffkine Institute only one post was reserved for the I. M. S. and one in the Public Health Department. But, later, it had been pointed out by the Setretary of State for India under the Devolution Rules that those members of the I. M. S. who were on the Civil List, but who had not been provided for, had to be accommodated. Under that rule, provision was made for the two additional members of the I. M. S. in the Public Health Department and the Haffkine Institute.

Dr. Gilder asked where the second officer for the Haffkine Institute had come from.

Mr. Kirpalani stated that he came from Madras.

To a further question, Mr. Kirpalani replied that the I. M. S. being an all-India service, the members thereof had to be provided for.

False Medical Titles

A question regarding unqualified medical practitioners in Bombay was raised by Mr. L. R. Tairsee (Indian Merchants' Chamber).

The Home Member told Mr. Tairsee that a memorandum signed by a large number of registered medical practitioners had been forwarded to the President, Bombay Medical Council, on the subject.

" Are Government aware that a homœopathic university said to be located at Hadar has been conferring medical degrees on a number of men and women in Bombay? "—" Yes ".

" Does the said University hold any examinations? If so, what is their syllabus? "—" Governhave no information.

" Do Government intend to see that the said university is conducted on proper lines?"—" Government do not exercise any control over institutions imparting education in the homœopathic system of medicine ".

" Are Government aware that the quacks who assume medical titles and practise are likely to be mistaken for those having proper qualifications and their unrestricted practise is likely to be a menace to the public health of Bombay? "—" Yes ".

" If so, what steps do Government propose to take in the matter? "—" If a specific case of assumption of medical titles in contravention of the Indian Medical Degrees Act, 1916, is brought to the notice of Government, the necessary action will be taken.

In reply to Dr. M. D. Gilder (Bombay city), the Home Member said that anybody could use as many letters as possible after his name as degrees, provided he did not practise fraud.

To a further question as to whether Government could do nothing to prevent the public from being imposed upon by unqualified persons, the Home Member said that Government could do nothing at present.—*The Times of India.*

THE CENTRAL MIDWIVES AND NURSES COUNCIL, BURMA

Extracts from Proceedings of the 39th Ordinary Meeting of the Central Midwives & Nurses' Council held in the Office of the Inspector-General of Civil Hospitals, Burma, Rangoon at 1-30 p.m. on Tuesday, the 14th January, 1936.

President—Colonel N. S. Sodhi, M.C., L.M.S.

Members—Lieut.-Colonel M. L. Treston, F.R.C.S., F.C.O.G., I.M.S., Lieut.-Colonel E. Cotter, M.B., D.P.H., I.M.S., Dr. A. D. Broatch, M.B., ch.B. (Edin.), Dr. (Miss) Ma Saw Sa, M.B.F., F.R.C.S.I., D.P.H., Sardar Bahadur Dr. R. S. Dugal, Dr. A. J. Masillamony, M.B. (Cal.), Miss D. S. France, Mrs. A. D. Arachy, Sydney Loo-Nee, Esq., Bar-at-Law, U. Ba Thin, Bar-at-Law.

A. *Condolence*—Before proceeding with the business of the meeting the President on behalf of the Council gave expression to its feelings of sorrow at the demise of Dr. N. N. Parakh, K.I.H., M.L.C., Vice-President on 26th June, 1935, and on a motion from the chair resolved to place on record the grievous and irreparable loss caused to the Council by the lamented death of Dr. N. N. Parakh, K.I.H., M.L.C., its Vice-President and oldest member.

B. *Introduction of New Member*—The President introduced and welcomed on behalf of the Council Sardar Bahadur Dr. R. S. Dugal nominated by Government as a member of the Council in place of the late Dr. Parakh.

1. *Minutes*—

The minutes of proceedings of the 38th Ordinary Meeting of the Council held on the 14th June, 1935, which had been approved in circulation, were confirmed.

2. *Government Notifications*—

(a) Read Government of Burma Public Health Department Notification No. 35, dated the 24th June, 1935, nominating Dr. A. J. Masillamony, M.B. (Cal.), as a member of the Council on behalf of the Burma Medical Council.

Recorded.

(b) Read Government of Burma Public Health Department Notification No. 44, dated 12th August, 1935, nominating Sardar Bahadur Dr. R. S. Dugal as a member of the Council in place of the late Dr. Parakh.

Recorded.

3. *Council Rules*—

(a) Read Government of Burma, Public Health Department Notification No. 42, dated the 19th August, 1935, publishing the consolidated rules of the Council.

Recorded.

(b) Read Government of Burma, Public Health Department Notification No. 47, dated 31st August, 1935, publishing amendments to Rules 14 & 68 of the consolidated rules of the Council published in Public Health Department Notification No. 42, dated 19th August, 1935.

Resolved that it was not necessary to prepare or print separate electoral roles but that a supplementary list to the last issue of the Annual List of Registered Nurses & Midwives be issued in sufficient time before an election in accordance with Local Government's letter No. 498 SA 34 dated the 31st August, 1935, and that Government be addressed to amend or revise the relevant rules accordingly.

4. *Government Contribution*—

Read Endorsement No. 214 SA 34 (884) dated the 30th September, 1935, from the Under Secretary, Education Department communicating the sanction of Government to a contribution of Rs. 2,000/- to the Council for the year 1936-37.

Recorded.

5. *Reciprocal Registration*—

Considered a letter dated 15-6-35 from the Registrar of the Punjab Nurses Registration Council, re: reciprocal regitration of Nurses and Midwives free of charge.

Resolved that in view of the impending separation of Burma from India this question do stand over for the present and that the Punjab Nurses Registration Council by informed accordingly.

6. *Amendment of the Indian Medical Degrees Act*—

Considered endorsement No. 146 S 31 (708), dated 27-6-35, from the Local Government forwarding copies of correspondence showing that the proposal to amend the Indian Medical Degrees Act with a view to prevent the assumption and use by unqualified persons of titles implying qualifications in Western medicine, has been dropped.

Recorded.

7. *Remuneration to Chairman's staff—*

Considered endosement No. 5496/154 dated 29-10-35 from the Chairman, Board of Examiners for Midwives and Nurses containing a suggestion to raise the present rate of remuneration paid to his staff by the Council.

Resolved that the Council regrets its inability to increase the remuneration at present for lack of funds.

8. *Results of Final Qualifying Examinations—*

Read the report of the Board of Examiners for Midwives & Nurses on the results of the examination held in October, 1935.

(a) Resolved that the names of successful candidates be published as usual in the Burma Gazette and in local Newspapers.

(b) Accepted the recommendations of the Examination Board to remand for further training for six months as shown below:—

(i) 15 candidates in Midwifery including five for whom special permission is required under Rule 11 of Part IV of Appendix A of the Council Rules.

9. *Meetings of the Council—*

Resolved also that in order to avoid delay in announcing the results of Examinations meetings of the Council be held in future as follows:—

(i) One in the last half of April for considering among other matters the results of the April Examination.

(ii) Another in the last half of October for considering among other matters the results of the October Examination; and

(iii) Another in February under Rule 138 for Budget and other purposes, if any.

10. *Fees to Examiners—*

Considered the statement of expenditure of Rs. 356-12-9 incurred under the President's order in connection with the conduct of the Final Qualifying Examination in October, 1935.

Confirmed.

11. *Period of Confirmed training in Midwifery—*

(a) Considered Local Government's endorsement No. 285 SD 35 (1093), dated 23-10-35, re: extension of the period of training of probationer midwives at the Dufferin Hospital, Rangoon, from 1 year to 1½ years. Recorded.

(b) Read endorsement No. 414 (a)/13 G: 3, dated 9-1-36, from the Inspector-General of Civil Hospitals, Burma recommending that the extended course of training at the Dufferin Hospital, Rangoon, be given effect to from 1-11-35. Accepted the recommendation.

(c) Resolved also that the other Centres in Burma for training Midwives viz. the General Hospital, Mandalay, and the Ellen Mitchell Memorial Hospital, Moulmein be addressed with a view to the adoption by them of the extended course of training in Midwifery.

12. *Training of Nurses & Midwives in Japan—*

Considered papers relating to the rules and regulations of training of nurses and midwives in Japan and lists of recognised training schools or institutions for midwives and nurses in that country.

Resolved that the papers be recorded and that these records be placed at the disposal of individual members of the Council for purposes of reference when occasion arises or when required by them.

13. *Registration of Midwives and Nurses trained outside Burma—*

Considered papers relative to the registration and admission to the qualifying examination held in Burma of candidates trained in Midwifery or Sick-nursing at Centres outside Burma.

(a) Proposed by Dr. Broatch and seconded by Lieut-Colonel Cotter that the words " at an institution recognised by the Council " be inserted between the words "Nurse" and "together" in Rule 3 (b) of the Council Rules. This proposition was negatived by a majority of 7 to 3.

(b) Resolved that the existing rules were adequate and that no amendment was necessary.

14. *Restoration to Register—*

Considered the request of Ma Win, who was removed from the Register under Resolution 10 of 13-2-34 for restoration of her name to the Register of Midwives and Nurses.

Resolved that consideration of Ma Win's application be postponed to the next meeting of the Council and that in the meantime the Registrar be requested to address the Deputy Commissioner and the Civil Surgeon, Thayetmyo, with a view to obtaining a report from them as to her character and conduct during her stay at Kama.

15. *Election of Vice-President and members of the Executive Committee—*

Vice-President—Sydney Loo-Nee, Esq., Barrister-at-Law was elected for the year 1936-37.

Members—

The following were elected for the year 1936-37.

1. Sydney Loo-Nee, Esq., Bar-at-Law, Vice-President.
2. Dr. (Miss) Ma Saw Sa, M.B.E., F.R.C.S.I., D.P.H.
3. Lieut.-Colonel E. Cotter, M.B., D.P.H., I.M.S.
4. Lieut.-Colonel M. L. Treston, F.R.C.S., F.C.O.G., I.M.S.
5. Miss D. S. France, Nursing Superintendent, Rangoon General Hospital.

(*Note*—Sardar Bahadur Dr. R. S. Dugal who got the same number of votes as the Nursing Superintendent, Rangoon General Hospital withdrew in favour of the latter).

16. *Registrar—*

(a) Read endorsement No. 270 SA 35 (1057) dated 30-3-35 from the Secretary to the Government of Burma, Education Department sanctioning the re-appointment of Mr. W. A. D'Castro, I.S.O. as Registrar of the Council for a period of one year from 1935.

Recorded.

(b) Read letter No. 405 SA 35 (1427 & 1428) dated 21-12-35 from the Secretary to the Government of Burma, Education Department appointing Mr. Rajagopalan, B.A., to act as Registrar of the Council on a recurring fee of Rs. 50/- per mensem during the absence of Mr. D'Castro, I.S.O., on leave.

Recorded.

17. *Trained Nurses' Association of India—*

Considered letter dated 16-11-35 from the General Secretary, The Trained Nurses Association of India, re: certain resolutions of the said Association for appointment of an Inspectress of Hospitals.

Resolved that no reply to the letter was necessary and that the papers be recorded.

18. *Board of Examiners—*

(a) Considered the appointment of a Chairman and members of the Board of Examiners for conducting the examinations for Midwives and Nurses during the year 1936.

Resolved that the following be appointed—

Chairman—The Medical Superintendent, Rangoon General Hospital.

Members—Dr. (Miss) Ma Saw Sa, M.B.E., F.R.C.S.I., D.P.H. The Nursing Superintendent, Rangoon General Hospital. The Matron, Dufferin Hospital, Rangoon. Dr. P. K. Dey, M.B., ch.B., (Edin.).

ORAL EXAMINERS

1. For Rangoon General Hospital. Dr. P. K. Dey, M.B., ch.B. (Edin.), and the Matron, Dufferin Hospital, Rangoon.

2. For Dufferin Hospital, Rangoon, Dr. Ma Saw Sa, M.B.E., F.R.C.S.I., D.P.H., the Nursing Superintendent, General Hospital, Rangoon.

3. Mandalay—The Civil Surgeon Mandalay and Miss R. M. Simmonds, Matron, Q.A.C., Hospital for Children, Mandalay.

4. Moulmein—The Civil Surgeon, Moulmein, and U. Tha Htin, L.M.P., Registered Medical Practitioner, Moulmein.

5. Bassein—The Civil Surgeon, Bassein, and Dr. C. R. Chetti, Civil Assistant Surgeon (Retd.), Bassein.

In the case of Akyab Centre, the President was authorised to nominate the oral examiners on receipt of a reply from the Civil Surgeon, Akyab.

(b) Considered Letter No. 6783/154, dated 18th December, 1935, from the Medical Superintendent, Rangoon General Hospital, regarding the number of members on the Examination Board.

Resolved that the Board should consist of a Chairman and 4 members as in the previous year.

19. *Appointment of Auditors—*

Resolved that Sardar Bahadur Dr. R. S. Dugal and Dr. A. J. Masillamony, M.B. (Cal.), be invited to audit the accounts of the Council for the year 1935-36 after the close of the financial year.

20. *Budget—*

Considered the Budget Estimate of Income and Expenditure of the Council for the year 1936—37.

Approved.

21. *Annual List—*

(a) Considered the number of copies to be printed of the Annual List corrected up to 31st March, 1936.

Resolved that 210 copies including 5 inter-leaved copies for the use of the office only be printed.

(b) Accorded sanction to the printing in November, 1935, of 210 extra copies of the Annual List corrected up to 31st March, 1935.

22. *Sale of Rules*—

Considered the question of fixing the price of copies of Council Rules as published in Public Health Department Notification No. 42, dated 19th August, 1935, and their amendments.

Resolved that annas four be charged for each copy of the rules exclusive of postage and anna one for each copy of amendment.

23. *Training Institutions in India*—

Considered the papers re: list of training institutions and centres in midwifery and sick-nursing in India.
Recorded.

24. *Matron, General Hospital, Mandalay*—

(a) Read Government of Burma, Public Health Department Notification No. 62, dated 10th December, 1935, announcing the nomination of the matron of the Mandalay General Hospital as a member of the Council vice Miss Luders resigned Recorded.

(b) Resolved to place on record the Council's appreciation of the services rendered by Miss Luders as a member of the Council.

25. *Tribunal*—

(a) Read Government of Burma, Public Health Department Notification No. 60, dated 18th November, 1935, amending Rule 18 of the Tribunal Rules published in Public Health Department Notification No. 129, dated 7th November, 1924.

(b) Resolved on the suggestion of Mr. Sydney Loo-Nee that Government be addressed with a view to bringing up to date the names of members of Panels shown on page 11 of the Annual List of registered midwives and nurses and that it be recommended to Government that in order to obviate frequent changes, members of Panels be appointed as far as possible by designation and not by name.

(c) Resolved to draw Government's attention to the anachronism in section 6 (1) (a) of the Burma Midwives and Nurses' Act, 1922, in which a reference is made to the Chief Court of Lower Burma instead of the High Court of Judicature in Burma.

26. *Advisory Committee of the Rangoon Dufferin Hospital*—

read papers re. nomination of—

1. Dr. (Miss) Ma Saw Sa, M.B.E., F.R.C.S.I., D.P.H., and

2. Mrs. A. D. 'Arachy, as members to serve on the Advisory Committee of the Rangoon Dufferin Hospital during the year 1936. (*Burma Medical Journal*, February, 1936, p. 1370).

ASIATIC SOCIETY OF BENGAL

Medical Section

A joint meeting of the medical section of the Asiatic Society of Bengal, the Calcutta School of Tropical Medicine, and the All-India Institute of Hygiene and Public Health was held in the Lecture Theatre of the Calcutta School of Tropical Medicine, Central Avenue, on Tuesday, the 4th February, 1936, at 3 p.m.

The following paper was read:—

K. V. Krishnan—The mechanism of hæmolysis in malarial hæmoglobinuria of monkeys.

Summary:

With a view to finding out the nature of the hæmolytic agent, if any, that is responsible for hæmolysis and hæmoglobinuria in monkeys infected with P. knowlesi the biochemical changes were studied in the blood of the following four groups of infected monkeys, namely,

1. Splenectomized monkeys developing hæmoglobinuria.

2. Splenectomized monkeys not developing hæmoglobinuria.

3. Non-splenectomized monkeys not developing hæmoglobinuria.

4. Non-splenectomized monkeys developing hæmoglobinuria.

Special attention was paid to the following constituents: cholesterol—total, free, and ester; total fatty acids; inorganic and organic phosphorus; and glucose. The results indicate that hæmolysis and hæmoglobinuria are associated with a fall in free cholesterol and a rise in ester cholesterol; no change in total fatty acids; a rise in inorganic and organic phosphorus; and a fall in glucose. These changes when taken along with others suggest liver damage and an upsetting of the glucose and fat metabolisms.

If this view is correct then it is possible that the hæmolytic agent, if any, responsible for the hæmolysis, is only a product of altered metabolism, as for example, a higher member belonging to the unsaturated fatty acid group, and that it acts when free cholesterol is low. It is suggested that the agent causing hæmolysis in blackwater fever in man is also of a similar nature.

BENGAL COUNCIL OF MEDICAL REGISTRATION

Abstract of the Minutes of the meeting of the Council held on the 27th August, 1935.

1. Reports on the inspection of the Jackson Medical School, Jalpaiguri, dated the 25th April, 1935, and 18th July, 1935, were considered and adopted and it was decided that recognition of the school should be continued for the year ending April, 1936, that admission of 25 students during the year be allowed and that future action would depend on the report by the Inspection Committee after their inspection in October, 1935.

2. Report of the Inspection Committee on the observations made by the authorities of the Ronaldshay Medical School, Burdwan, National Medical Institute, Calcutta, and the Bankura Sammilani Medical School on their last inspection reports was considered and recorded.

3. Government of Bengal Notification No. 540-Medl., dated the 14th February, 1935, publishing amendments in the Election Rules proposed by the Council without material alteration and Notification No. 2905-Medl., publishing the revised rules in the final form were recorded.

4. The syllabus in Hygiene of the Final Licentiateship course as revised by Lt.-Col. A. D. Stewart, C.I.E., M.B., Ch.B., D.P.H., I.M.S., and endorsed by the Board of Studies was recorded.

5. Revised rules under the Bengal Medical Act, 1914, other than Election Rules as approved by Government were recorded.

6. Government notification announcing the acceptance of the recommendation of the Council that the L.M.S. diploma granted by the Andhra University be recognised as registrable under section 18 of the Bengal Medical Act, 1914, was recorded.

7. Government notification announcing the acceptance of the recommendation of the Council that the L.M.S. diploma granted by the Rangoon University be recognised as registrable under section 18 of the Bengal Medical Act, 1914, was recorded.

8. Returns submitted by recognised institutions were recorded.

9. Application from Dr. Mrs. Kusumkumari Majumdar, L.M.P., L.M. (Dub.), for the entry of M.D. (Berne U.) against her name as an additional qualification was refused.

10. Report of the Committee appointed to consider the undernoted motion of Dr. A. D. Mukherjee, L.M.F., recommending that action be taken in accordance with the suggestion made whenever practicable was adopted:—

"This Council is definitely of opinion that in institutions recognised by this Council each subject excepting Medical Jurisprudence and Hygiene must be taught by separate teachers as is done in the Medical Institutions of Calcutta and Dacca."

11. Notifications announcing the appointment of the undermentioned gentlemen as members of the Bengal Council of Medical Registration:—

(1) Rai Bahadur Dr. J. N. Chatterjee in place of Lt.-Col. B. H. Singh, I.M.S.

(2) Captain G. B. W. Fisher, I.M.S., in place of Lt.-Col. P. Banerjee, I.M.S.

(3) Khan Sahib Dr. M. M. Khan in place of Major T. H. Thomas, I.M.S.

12. The following two gentlemen being representatives of the Bengal Council of Medical Registration and State Medical Faculty of Bengal were re-nominated to be members of the Bengal Sanitary Board for a fresh term:—

(1) Dr. T. N. Majumdar, L.M.S., D.P.H., D.T.M.

(2) Dr. Abdul Majed, M.B., D.T.M., D.P.H.

13. The report on the revision of the Appendix to the Annual Medical List submitted by the Committee was referred to a fresh Committee consisting of the Penal and Ethical Cases Committee and Dr. B. C. Roy, M.D., M.R.C.P., F.R.C.S., Dr. K. S. Ray, M.B., Ch.B., and Dr. J. C. Chatterjee, L.M.S., for re-examination.

14. Application from Dr. M. R. Treu, M.D. (Cologne), for registration in the Bengal Medical Register was refused.

15. Dr. A. D. Mukherjee moved the following:—

"This Council is of opinion that with a view to safeguard the interests of registered medical practi-

tioners in the rural areas of Bengal, the Bengal Government be requested to devise ways and means, if needed, by legislation, to prevent the practice of the Western System of Medicine by unqualified practitioners."

This was amended by Dr. B. C. Roy as follows:—

"That this Council is of opinion that with a view to safeguard the interests of registered medical practitioners in Bengal a committee of five members be appointed by the Council to find out to what extent, if any, the interests of registered medical practitioners are affected by the existence of unregistered practitioners and to devise ways and means of remedying the same, provided that the Council may not be subjected to any financial liability in this regard."

Dr. Mukherjee accepted it as his substantive motion. It was therefore referred to a Committee consisting of:—

Dr. B. C. Roy, M.D., M.R.C.P., F.R.C.S.
Dr. K. S. Ray, M.B., Ch.B.
Rai Sahib Dr. P. C. Roy, L.M.P.
Dr. J. C. Chatterjee, L.M.S.
Dr. A. D. Mukherjee, L.M.F.

with power to co-opt additional members.

16. A report of the Penal and Ethical Cases Committee was considered, the only important decision being that action be taken in accordance with the rules to remove Dr. Bipinbihari Gupta's name from the register for advertisement in lay papers.

17. Dr. A. D. Mukherjee moved the following:

"Resolved that this Council do appoint every year a committee of five members to inspect the different medical examinations held by the State Medical Faculty of Bengal and submit a report to this Council after each inspection."

It was decided at the suggestion of Dr. B. C. Roy that the Advocate-General's opinion be obtained with regard to the powers of the Council to inspect examinations of the Faculty and the consideration of the matter was postponed.

18. The following motion of Dr. A. D. Mukherjee was referred to the Penal and Ethical Cases Committee for consideration and report:—

"This Council records with concern that the registered medical practitioners are associating themselves with Secret Remedies and helping the propaganda of these drugs in a manner which ignores the principles of Code of Ethics. This Council resolves that a warning notice be issued to the registered doctors by the Registrar while sending out the voting papers in connection with the ensuing elections.

BARODA MEDICAL UNION

The Fourth Meeting of the Baroda Medical Union was held on 11th February, 1936, when Dr. R. B. Chandrachud, M.B., F.R.C.S. (London), was in the chair. Dr. Kedar Nath Kulshreshtha, M.D., F.R.C.S., read a paper on "Menstrual Disorders—their Diagnosis and Treatment." He discussed different varieties of Amenorrhœa and Menorrhagia—their signs and symptoms and treatment and also gave the different medical remedies that are available on the market and their relative use. Some members asked some questions and they were answered by the lecturer.

Dr. H. S. Thakor was At Home to the members. With a vote of thanks to the chair, the meeting terminated.

ALL-INDIA MEDICAL LICENTIATES' ASSOCIATION, BOMBAY

The subject for the Dr. Joseph-Benjamin Prize of the value of Rs. 35/- (Rupees thirty-five) only, for the year 1936, is *Piles* (Hæmorrhoids) and for the Dr. P. S. Ramachandraier's prize of the value of Re. 25/- (twenty-five only), for the year 1936 is *Whooping Cough*.

All bonafide members of the Associations can compete.

Intending competitors are requested to write papers from practical point and on lecture style, and the same should not exceed 1000 typed lines or their equivalent.

The papers should be sent to Dr. Joseph Benjamin, President, Gujrat Branch, All-India Medical Licentiates' Association, Dhalgarwada, Ahmedabad, so as to reach him on or before the 30th September, 1936.

MADURA MEDICAL ASSOCIATION

The following resolution moved by Lt.-Col. P. Verdon, I.M.S., President of the Association, was

passed at the Annual General Meeting of the Association held on 7th March, 1936, all present standing:—

"This Association places on record its deep sense of loss at the sudden death of Col. Bhola Nauth, I.M.S. (Retd.), President of the Indian Medical Association."

* * * *

A General Body Meeting of the Association was held at the Government Hospital, Madura on 4th April, 1936 at 5 p.m. Twenty-two members were present. Dr. E. W. Wilder, M.D., presided. The following resolutions were passed:—

1. Minutes of the previous meeting and the statement of receipts and expenditure concerning the annual meeting held on 7th March, 1936, were read and passed.

2. Resolved that this Association do join the Tamil District Federation.

Adjournment motion moved by Dr. Viswanathan, was passed by a majority of 12 votes to 5.

3. Resolved that in our opinion the establishment of a College of Physicians and Surgeons is not necessary for the Madras Presidency. Carried by a vote of 16 to 6.

4. It was resolved unanimously to send its fraternal greetings and best wishes to the "Chettinad Medical Association" on the occasion of its Sixth Annual Gathering to be held on 9th April, 1936, and Drs. E. W. Wilder, A. N. Menon, and the Hony. Secretary were elected to represent this Association at their Annual Gathering.

Dr. A. N. Menon spoke about the "Revival of the Local Branch of the Red Cross Society" by Mrs. Priestley and requested the members to volunteer to give lectures under its auspices.

Dr. Narayana Iyer presented cases of Interstitial Keratitis in acquired syphilis.

With the usual vote of thanks to the lecturers and Chairman the meeting terminated at 7-30 p.m.

TANJORE DISTRICT MEDICAL ASSOCIATION

Office-bearers for 1935

President—Captain P. J. Kelly, I.M.S.
Secretary—Captain B. D. Rao, and
Treasurer—Captain K. M. Anantan resigned on transfer from Tanjore.
Secretary and Treasurer—E. K. Menon, M.R.C.S. (Eng.).

Committee Members—Dr. M. K. Sambasivam, M.B.B.S., Dr. M. Narayana Pai, M.B.B.S., Dr. N. S. Ramaswami, M.B.B.S., Dr. Miss D. Theodore, and Dr. K. Rama Rao.

Annual Report for the year 1935

Our Association apparently came into existence in the year 1916 but no records are available to establish precisely its age. It did not function at all for some years and in the beginning of the year 1935, special efforts were made to bring it back to life and since it has been functioning fairly active.

This report is an attempt to review the activities of the Association during the year 1935. Nine meetings were held during the year, when lectures were given on subjects of interest, particularly to the general practitioner. Demonstrations of clinical cases were invariably a feature of these meetings. Members actively took part in the discussions that followed and the exchange of views thus brought about were generally regarded as beneficial to almost all who attended the meetings. The President of the Indian Medical Association, the late Col. Bhola Nauth, I.M.S., addressed a meeting of the Association urging us to form a branch of the Indian Medical Association at Tanjore.

Before the meeting assembled, all the members were entertained with tea and on all occasions except once one of the members or a few of the members jointly acted as hosts. On the invitation of Dr. M. K. Sambasivam the Association held its March meeting at Kumbakonam.

Finance—The year started with a balance of Rs. 750-12-0 to our credit. Subscriptions paid by members came to Rs. 178-0-0. About fifty per cent. of the members have not yet paid their subscriptions and these members have been reminded more than once to pay up their dues. I have every confidence that these members will send in their subscriptions as early as possible and prevent our Association languishing from nutritional anæmia.

We have on our rolls 187 members, the average attendance at our meetings being fifty. In other words, three out of four doctors in the Tanjore district have been keeping away from our meetings. All will agree with me that this is a deplorable feature, and I take this opportunity of pressing the necessity of all

the medical practitioners in the district, developing a spirit of fellowship among ourselves. It is unnecessary to stress the importance of all the medical practitioners in the district uniting themselves into a solid body in these days when our country is passing through momentous changes.

E. K. MENON,
Secretary.

TINNEVELLY DISTRICT MEDICAL ASSOCIATION, PALAMCOTTAH

The Tinnevelly District Medical Association held its monthly meeting on Tuesday, the 17th December, 1935, at Koilpatti. A Health Exhibition was arranged at the Board High School, Koilpatti, at 10 a.m. Lieut.-Col. T. S. Shastry, I.M.S., welcomed the guests and requested the Rajah of Ettayapuram to open the Exhibition. The Rajah expressed in a short speech that such exhibitions are very useful, instructive and beneficial to the masses. Mr. M. Manakavalan, the Local Health Inspector, gave an interesting lecture in Tamil on the prevention and causation of tuberculosis, flies and mosquitoes and cholera, explaining in easy Tamil for the benefit of about 500 little boys and girls of the local schools the posters on the subjects which were exhibited on the walls. The Exhibition was thrown open to the public till late in the evening. The Exhibits consisted of posters relating to cholera, tuberculosis, malaria, small-pox, fly-danger, etc. This was very much appreciated by the public.

Members numbering 30 including some lady doctors gathered from all parts of the District at 4 p.m. Some of the officials and non-officials were also present.

After tea and sweet music the meeting began under the presidentship of Lieut.-Col. T. S. Shastry, I.M.S. The Secretary real the minutes of the monthly meeting held at Srivaikuntam, on 23rd November, 1935, and the minutes of the special meeting arranged at the Vannarpet Hospital for the address of Col. Bhola Nauth, C.I.E., I.M.S. (Retired), which were passed.

Then the discussion about the scheme of meetings for 1936 was resumed, and it was decided to hold the meetings on the present ambulatory principle.

The following resolutions were passed unanimously:—

"I. The objects of the Indian Medical Association recently started on the model of the British Medical Association, being to promote and develop medical and allied sciences.

The objects of the Tinnevelly District Medical Association being the same as the above.

Being assured by Colonel Bhola Nauth, C.I.E., I.M.S. (Retired), President of the Indian Medical Association that the management of the Indian Medical Association is in the hands of well-experienced and practical men, whose sole purpose is to achieve the above objects.

The monthly meeting of the Tinnevelly District Medical Association assembled at Koilpatti hereby unanimously resolves after full discussion that the Tinnevelly District Medical Association should be affiliated as a unit to the Indian Medical Association.

II. The programme of meeting suggested by the Managing Committee for the next year is passed unanimously."

Case notes on (1) an early case of mycetoma foot, (2) an ectopic gestation, (3) an enlarged prostate and (4) multiple neurofibroma of leg which were operated on at the Headquarters Hospital, Palamcottah, and at the Government Women and Children Hospital, Vannarpet, were read. There was a lively discussion. Preserved specimens of the above cases were also shown to the members.

Lieut.-Col. T. S. Shastry, I.M.S., delivered an interesting lecture on "Prostatic Obstruction." He first explained briefly the anatomy and physiology of this gland and its functions, then went on in detail about the symptoms which arose from the enlargement of this gland. He discussed the differential diagnosis and the treatment, both symptomatic (conservative) and also the operative. He also described in detail about the different routes through which the prostate gland can be enucleated, and also about the best time and condition to perform the operation.

The President offered thanks to Dr. A. Navamoni, L.M.P., Selection Grade Sub-Assistant Surgeon of the Local Fund Hospital, Koilpatti, and to his fellow-members of the area, for their splendid hospitality.

Thereafter an excellent dinner brought the happy gathering to a close.

N. ISAAC,
Secretary.

U. P. PHARMACEUTICAL ASSOCIATION

A meeting of the Council of the U. P. Pharmaceutical Association was held in the Department of Pharmaceutics, Benares Hindu University when the following office-bearers were elected for the current year:—

President: Rai Bahadur Dr. B. N. Vyas, Head of the Department of Pharmacology, King George Medical College, Lucknow.

Vice-President: Dr. K. C. Pandya, Professor of Chemistry, St. John's College, Agra.

Secretary: Prof. M. L. Schroff, Head of the Department of Pharmaceutics, Benares Hindu University.

Joint Secretaries: Mr. D. N. Mazumdar, M.Sc., A.I.I.Sc., Lecturer in the Department of Pharmaceutics, Benares Hindu University and Mr. Kamta Prasad, Compounder, Secrole Dispensary, Chouka-ghat, Benares.

Treasurer: Prof. N. K. Basu, Assistant Professor of Pharmaceutical Chemistry, Benares Hindu University.

The U. P. Pharmaceutical Association has been recently registered under the Societies Registration Act of 1860 and has the following for its objects:—

(a) To train men for the profession of Pharmacy in the United Provinces who will be at par with those in other civilized countries and to devise ways and means for the attainment of this ideal.

(b) To promote the cause of the science and art of Pharmacy in all their different branches.

(c) To raise the status, outlook and ethics of those who are directly or indirectly engaged in Pharmaceutical trade and profession by absorbing in the Association the various allied associations of the province.

(d) To participate in matters of interest affecting the Science, Art or Profession of Pharmacy by sending representatives or otherwise to various bodies dealing with or interested in such matters.

(e) To hold examinations under the Association and to grant degrees and diplomas to properly qualified persons.

(f) To establish a laboratory for the investigation of indigenous drugs with a view to incorporate the useful ones in an Indian Pharmacopœia, when it is published.

(g) To edit and publish journals, books, magazines, documents and other publications for promoting the cause of Pharmacy in India.

(h) To undertake all such things as are incidental or conducive to the above objects including:—

(i) The acquisition and management of funds and property.

(ii) The acquisition of rights and privileges necessary or convenient for the objects of the Association.

(iii) The management, development, improvement, disposal and sale of all and any parts of the property of the Association.

The ordinary membership of the Association will be open to those persons who hold the following qualifications:

(a) Persons who are graduates in Pharmacy or Pharmaceutical Chemistry, of any University or college recognized by the Association.

(b) Persons who are registered practitioners of medicine or surgery.

(c) Persons who have worked for at least five years in some dispensary or hospital subsequent to the passing of an examination for the certificate of a compounder or dispensing chemist.

(d) Persons who have passed any other examination requiring at least two years' training in Pharmacy and Pharmaceutical Chemistry subsequent to the Matriculation Examination or an equivalent examination held by any University or Board of High School and Intermediate Examination of the United Provinces.

(e) Persons who have passed any of the examinations of this Association.

(f) Persons who have been engaged in any manufacturing pharmaceutical laboratory for at least five years subsequent to their graduation from a University.

(g) Persons who have been engaged in teaching pharmaceutical subjects, including chemistry—*Hindusthan Times.*

OBITUARY

DR. K. M. NADKARNI

Dr. K. M. Nadkarni the well-known journalist and author breathed his last on 14th March, 1936, at the age of 72 at his residence at Dongerkery, Mangalore (S.K.) South India.

Dr. Nadkarni belonged to a respectable Saraswath well-to-do family. He was educated in the Government College, Mangalore; Presidency College, and Medical College, Madras. As he had his training in the Western System of Medicine and as he was a man full of adventure and spirit, he dared single-handed, even when organisations like the Bombay Medical Union and the Grant Medical College Society of Bombay had not succeeded, to found and edit the pioneer Medical Journal in 1892 in Bombay, styled " The Doctors' Magazine ", when there was not a single Medical Journal in the Western, Central and Southern Presidencies. In the year 1893 he again founded independently another bulkier Medical Journal in Bombay on slightly different but improved lines, styled " The Indian Medico-Chirurgical Review " which he ably edited jointly with Dr. Sir N. H. Choksy of the Bombay Medical Union, with topics of medical politics and discussion of the grievances of non-official and subordinate medical officers, to fight the virulence of race-interests and vested rights of the I. M. S. and Warrant Medical Officers of the day. Both these journals had high encomiums from the British and Foreign Medical Press. In 1894 he established the " Medical Circulating Library " and the " Foreign Magazines Supplying Agency " in Bombay which also were well patronised by the profession.

He took extraordinary interest in the science of music, contributing several articles from Madras and Bombay to Indian and foreign periodicals on the science of music besides medical, and had even founded a Society in Bombay under the name and style of *Arya Gayana Rakshaka Mandali* whose members included savants of all Indian communities. He was one of the first few to be elected a Fellow of the Incorporated Society of Science, Letters and Arts, London; Member of the Chemical Society, Paris; Member of the British Pharmaceutical Conference, London, in recognition and appreciation of his contribution of Medical and Scientific articles to Foreign journals, and his independent pioneer medico-scientific journalism and publications in Western India.

In 1902 he again started in Madras and ably edited a monthly journal " Indian Health " treating Medical, Sanitary and Hygienic subjects. This journal was also the premier medical monthly of the Madras Presidency.

Besides the above journalistic activities carried on against great financial and domestic odds, Dr. Nadkarni was the author of notable works on Western and Eastern systems of Medicine. Even when there was an overwhelming demand for the second editions of his works the " Essentials of Modern Treatment of Diseases ", the " Practitioners' Clinical Referee ", the " Wall-Chart of Health & Hygiene " dealing on the Allopathic System, he with a love to serve the Indian population better by publications on Indian Medicines, at great personal sacrifice of money, time and energy, determined to interest himself in the keen study of Indigenous Systems of Medicine under experienced Vaidyas of Bombay and Madras, and wrote in 1904 the " Indian Plants & Drugs, with their Medical Properties & Uses ", (which later on earned the recognition of being prescribed a text-book in the Allahabad & Lucknow Universities for the M.B. course) and then in 1927 the " Indian Materia Medica, with Ayurvedic, Unani, Siddha, Allopathic & Home Remedies " which is still a book of authenticity and reference to the medical and scientific professions of the East as well as the West.

Dr. Nadkarni leaves behind him his two sons and one daughter, and a large circle of relations and friends. May his Soul rest in peace!

A CORRECTION

We regret that an inaccurate statement regarding a donation of Rs. 60,000 to the Carmichæl Medical College from the late Sir Kedarnath Das had appeared in our issue of last month. This information was reproduced from a daily paper. On enquiry, however, at the College we find that there is no foundation for it

—Editor.